The Croonian Lectures

ON THE

PHARMACOLOGICAL ACTION AND THERAPEUTIC USES OF THE NITRITES AND ALLIED COMPOUNDS.

Delivered at the Royal College of Physicians of London on June 29th,

By D. J. LEECH, M.D., F.R.C.P. LOND.,

SENIOR PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY AND PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS AT OWENS COLLEGE, VICTORIA UNIVERSITY, MANCHESTER.

LECTURE IV.

THERAPEUTICS OF THE NITRITES AND NITRATES.

Neuralgia.—In neuralgia, especially of the fifth nerve, the administration of nitrite of amyl and nitro-glycerine has been followed by relief. Considering the trivial circumstances which seem at times both to bring on and to remove neuralgic pain, we can hardly be surprised that agencies which so powerfully affect the circulation should have a distinct influence in this ailment. In the majority of cases both amyl nitrite and nitro-glycerine have in my hands failed to give relief, and it has appeared to me probable that where they have removed pain their success has been due to circulatory influence, to what I have called a "surprise" effect, or to suggestion.

Strychnine poisoning and tetanus.—Dr. H. C. Wood has proved that amyl nitrite depresses the reflex influence of the cord and it has been suggested that this power might be utilised in strychnine poisoning. Experiments have been made which seem to show that in the rabbit nitrite of amyl antagonises to some extent the lethal influence of strychnine[1]; but, as Dr. H. A. Hare points out,[2] to be of service its full physiological action must be continuously present and inhalation will not suffice. I do not see how this drug can be of any practical use in strychnine poisoning in man, nor is it likely that it will prove to be an available remedy in tetanus, although some cases have recovered after its use. The long-lasting effect of the tetanus poison cannot, it seems to me, be effectively antagonised by the fleeting action of nitrite of amyl or other nitrites.

Epilepsy.—In epilepsy nitrites of amyl and sodium have been extensively tried, but the testimony as to their value is by no means uniform. Their employment rests to some extent on pharmacological grounds, for the nitrites in large doses depress the functions of the cerebral cells; they likewise dilate these vessels, the contraction of which is a concomitant—and some have thought a cause—of epileptic seizures. Moreover, it has been shown by Sir J. Crichton Browne that when the brain of a rabbit rendered epileptic by artificial means is stimulated convulsions will not follow in the usual manner if amyl nitrite be inhaled.[3] In favour of the utility of nitrite of amyl we have had the testimony of Sir J. Crichton Browne and Dr. Weir Mitchell. The former found it specially serviceable in the "status epilepticus." Others say they have found nitrite of sodium to be advantageous, whilst Osler thinks he has used nitro-glycerine with a certain amount of success; but many capable observers believe that the nitrites are of no avail in epilepsy. It seems to me unlikely that substances having such temporary influence on functions and tissues as the nitrites can be of any great benefit. Personally I have not seen good arise from their employment, though I have given them a fair trial. It is, however, possible that the inhalation of amyl nitrite, when an attack is immediately impending, may ward it off. In the case of nitro-glycerine and sodium nitrite dilatation of the vessels does not, if ordinary doses be given, last for more than two or three hours, and even during much of this time the arteries are contracting after their dilatation. Unless, then, nitrites are given at very short intervals, the protective effect must be transient. I do not anticipate that the nitrites will ever play an important part in the treatment of epilepsy.

[1] St. Clair Gray, Glasgow Medical Journal, 1871, p. 166.
[2] Boston Medical Journal, vol. cxi., p. 481.
[3] West Riding Lunatic Reports, vol. iii., p. 168.

Tinnitus aurium.—Some evidence has been given that both nitrite of amyl and nitro-glycerine are at times of benefit in tinnitus aurium. I have seen some relief given by nitrites in this ailment, but have not had sufficient experience of its use to enable me to speak definitely of its advantages.

Bright's disease.—I have already given my views as to the diuretic value of nitrites when speaking of their pharmacology; I propose now to allude to their employment in Bright's disease. In acute Bright's disease it is very difficult to determine the effects of a diuretic. Spontaneous increase in the flow of urine is as much a part of the natural history of the disease as is the termination of pneumonia by defervescence. In ten cases of acute nephritis, the course of which was not influenced by medicine, I found that in all diuresis set in between the ninth and twenty-first day. I have certainly seen a great increase in the flow of urine follow the administration of the nitrites of ethyl and sodium and of nitro-glycerine in many cases of acute nephritis; but, on the other hand, this result by no means always follows, and I know of no means by which it can be determined whether, when a diuresis occurs in acute nephritis after a nitrite, it is *post hoc* or *propter hoc*. General impressions are not of great value, but it certainly has seemed to me that a minim of liquor trinitrini or two grains of sodium nitrite every four hours occasionally expedites the advent of the diuresis which precedes recovery. Such medication, too, may tend to decrease headache and other discomforts present in acute Bright's disease, and I believe there is the advantage that it is incapable of doing harm. No evidence has yet been given that nitrites can inflict any injury even on an inflamed kidney. As I have not found diuresis follow in a very early stage of acute Bright's disease I do not give them in the earliest stage unless symptoms are present which seem to render their administration desirable, but in the doses I have mentioned they may be useful as adjuncts to other methods of treatment if, after a week or more has elapsed, no critical diuresis supervenes. In the large white kidney and in mixed forms of chronic nephritis the difficulty of judging of the value of a remedy, though not so great as in acute Bright's disease, is still considerable, for here, too, we not infrequently meet with spontaneous diuresis which is apt to be put down to any medicine that has been given. It has been claimed that nitrites in chronic Bright's disease decrease the total amount of albumen passed whilst they increase the amount of urine. I have been unable to determine the regular decrease in albumen which some have seen, though decrease does at times occur, nor have I been able to note so great an alteration in the amount of urine passed as would lead me to believe that nitrites have a pronounced effect on its excretion. I have, indeed, at times known profuse diuresis to occur under their use; but, as in acute Bright's disease, I have not always been satisfied that it has taken place because of their use. I have, indeed, often observed a temporary increase lasting a day or two, and comparing the amount of urine excreted during the periods in which nitrites have been given with the amount passed before and after their administration I find in a series of cases in which the data are fairly reliable a slight increase in the amount of urine excreted under nitrites. It has seemed to me that under the influence of small doses of nitrites three or four times a day patients have been on the whole more comfortable, the skin acting better, and dyspnœic discomforts, if present, becoming less prominent. My impression, then, is in favour of a use of nitrites in Bright's disease. I do not hold them to be curatives, but they seem to give relief. In the contracted form of chronic Bright's disease the nitrites are often of great value, especially in the later stages. In the earlier stages, when the chief symptoms are failing health and high tension, I have not found them to be of service, but when there is dyspnœa and the heart's action begins to fail somewhat a minim of trinitrin solution given three times daily will often add greatly to the patient's comfort and, I believe, will tend to prolong life, even though it may fail to subdue dyspnœic storms. It is said to be of service in uræmic convulsions, but I have not seen any definite advantage from it in the few cases in which I have employed it.

Other diseases of the genito-urinary organs.—In dysmenorrhœa nitro-glycerine has been found to be of service and it is certainly worthy of a trial. In post-partum uterine contractions there are records of advantages gained by its use, but its vascular influence renders it a remedy of doubtful value in such cases.

Sea-sickness.—In the relief of gastric disturbances the nitrites can play but little part. Utility has been claimed for

them in enteralgia, and they have been given in sickness and the vomiting of pregnancy, like every other conceivable remedy; but it is not easy to see how they can be of service in gastro-intestinal irritation, for neither nitrous acid nor nitro-glycerine are sedatives. The claim of nitrite of amyl and nitro-glycerine for the relief of sea-sickness seems to stand on firmer ground; giddiness from anæmia of the brain is one of the troubles of mal-de-mer, and this may be relieved by nitrites. The pathology of sea-sickness is not sufficiently known to enable us to say that the influence of nitrites on the circulation is likely to combat the conditions which give rise to nausea and sickness; only experience can determine their value. It seems to me, however, that the balance is in favour of the occasional efficacy of vaso-dilators, and one or two tabellæ of nitro-glycerine are worthy of trial. The inhalation of amyl nitrite seems to be the most objectionable form in which nitrites can be given for sea-sickness. I do not propose to deal further with the numerous ailments in which the nitrites and nitro-glycerine have been employed. They are credited with the cure of ailments differing very widely in character—as, for example, ague, cholera, chorea and whooping-cough; but a knowledge of their pharmacological properties makes it probable that they can only relieve certain symptoms connected with circulatory conditions which may be present in these ailments.

Administration and dosage.—Before I finish with the therapeutics of the nitrites I should like to make a few remarks on the employment of the official compounds and especially with regard to the spiritus etheris nitrosi. When nitrite of sodium was first employed medicinally it was found to be very impure, sometimes containing more than 50 per cent. of the inert nitrate; even now impure specimens are occasionally dispensed. It is important therefore that the purity of the drug used should be inquired into if it does not give the relief sought for. With regard to dose, I believe it is well to begin with two grains. I have myself never seen discomforts from even three grains; but severe throbbing of the head has been recorded after this amount, and when given regularly in a very few instances slight blueness of the lips has been reported. Much larger doses may be given if neither physiological effects nor relief follows from the smaller doses. I have raised the dose to three or four, rarely to six, grains without seeing evil follow, but occasionally even small doses cause slight stomach discomforts. Solutions of sodium nitrite in the form of mixtures seem to keep fairly well.

The tabellæ trinitrini and the liquor trinitrini are excellent preparations of nitro-glycerine. It should be remembered, however, that nitro-glycerine will under some conditions decompose. In distilled water it undergoes no change, but in the presence of alkalies nitrite of the alkalies is formed, and when any salt is present some decomposition may occur. It is best therefore to order the liquor trinitrini in distilled water. One minim forms an average dose to commence with, but it may be gradually raised without fear of injury to twenty minims or more, provided no discomforts follow from its use. A small dose of nitro-glycerine may be repeated if it fails in ten or fifteen minutes to produce a perceptible effect, for in that time its full influence has been usually exerted. A somewhat longer time should be allowed to elapse after sodium nitrite. Nervous and hysterical people often feel throbbing in the head or even severe headache after small doses of either compound. It is rarely necessary to resort to subcutaneous injections, since nitrite of amyl acts so quickly when inhaled and nitro-glycerine when taken by the mouth. On one occasion, however, I saw a patient, after severe and prolonged anginal pain, lapse into semi-consciousness. After the failure of amyl nitrite relief seemed at once to follow the injection of two minims of liquor trinitrini. I find that nitro-glycerine is preferable to sodium nitrite for subcutaneous injection.

Concerning the value of spiritus etheris nitrosi there is much difference of opinion. As a household remedy it is much believed in and largely used; as a medicine it is employed usually rather as a routine remedy than because much faith is placed in its action. When in proper strength it contains an amount of nitrite of ethyl sufficient to enable it to reduce tension, yet its proneness to decomposition renders it an unreliable remedy for the purpose. The lack of appreciation of its value is, however, to some extent due to the method in which it is ordinarily employed; it consists of rectified spirit containing in solution from 2 to 2¾ per cent. of nitrite of ethyl, an uncertain amount of aldehyde and minute proportions of ethyl nitrate and other compounds. I shall point out shortly that aldehyde possesses properties which are in some measure antagonistic to those of ethyl nitrite; it contracts vessels, whilst nitrites, as we have seen, dilate them. Ethyl nitrate acts in the same direction as ethyl nitrite, but it is to the latter compound that spirit of nitrous ether owes its influence on the circulation. Now spirit of nitrous ether, when not exposed to the air, does not undergo rapid change in constitution, but kept, as it often is, for dispensing purposes, it rapidly loses some of its nitrite element. I found, for example, that a half-filled bottle, which on the day I first examined it contained the official amount of ethyl nitrite, lost in thirteen days 16 per cent. Many cases have been mentioned in which spirit of nitrous ether has been found to contain less than one-tenth of the normal amount of nitrite; but, owing to the method in which it is usually given, it becomes still more unreliable as a remedial agent. Under any circumstances a considerable portion of the nitrite of ethyl which it contains (about 50 per cent.) is at once dissipated; but on keeping the mixture the loss continues until all the ethyl nitrite is dissipated or decomposed. If, for example, half an ounce of spiritus etheris nitrosi is mixed with four ounces of water about half of the active ingredient—the nitrite of ethyl—is usually at once dissipated; but it will be found that on the next day from 30 to 50 per cent. of what was left has gone, and on the third day the mixture will probably contain a very small amount of the ethyl nitrite. The rapidity of disappearance varies greatly according to temperature and other circumstances; but it is manifest that under these conditions mixtures containing spirit of nitrous ether soon lose any medicinal value which they may have had when first dispensed. To be effective spiritus etheris nitrosi should be taken immediately it is mixed with water. A mixture becomes less effective with each dose taken. An alkali, or the acetate or citrate of ammonia prevents to a large extent this loss of nitrite. It is on this account, perhaps, that the old-fashioned fever mixture, containing acetate of ammonia and spirit of nitre, has justly maintained for so long a time its reputation as a diaphoretic and diuretic. In combining spirit of nitrous ether or the nitrites with other medicines the short period of their activity must be remembered. It has been suggested that the contraction of the vessels due to digitalis might be counteracted by combining it with the nitrites. Undoubtedly the contraction caused by digitalis may for short periods of time be annulled, but the prolonged action of digitalis on the vessels cannot be fully antagonised by substances like the nitrites.

THE NITRO-COMPOUNDS.

The group $-N\begin{matrix}O\\ \|\\ O\end{matrix}$, in which nitrogen is probably a pentad, as it is in the nitrate group, is capable of replacing a molecule of hydrogen in both fatty and aromatic compounds, and it seems of interest to determine whether this group plays an active part in the compounds into which it enters like the nitrate group (O—N=O), with which it is isomeric, or a more passive part like the nitrate group $O-N\begin{matrix}\|\\ O\end{matrix}$.

I have examined the action of the following paraffinic nitro-compounds on muscles, on vessels and on the heart: Nitro-methane (CH_3NO_2), nitro-ethane ($C_2H_5NO_2$), nitro-propane ($C_3H_7NO_2$), and nitro-pentane ($C_5H_{11}NO_2$). The nitro-paraffins are colourless compounds boiling above 212°, slightly soluble in water and very stable. They break up in the presence of alkaline carbonates, nitrites of the metals being formed. Professor Dunstan[4] has pointed out that when nitro-ethane is mixed with potassium carbonate half its nitrogen appears as nitrite of potash; it is decomposed by the carbonates even in the cold. The higher compounds are much less easily decomposed by alkalies than the lower.

Action on the muscles.—I find that nitro-methane has but little effect in interfering with the contractile power or life of muscle. If 1 part be added to 500 of normal salt solution the contractions do not seem to be in any way interfered with. Nitro-ethane is equally free from toxic effects; a muscle put up in a normal salt solution containing 1 in 500 of nitro-ethane was contracting well at the end of 290 minutes. In 1 in 1000 a muscle was living and would contract to stimulation after twenty-six hours. Nitro-propane is slightly more

[4] Journal of the Chemical Society, 1891.

toxic than nitro-ethane; 1 part of nitro-propane in 1000 parts of normal salt solution causes the contractions to fall somewhat at the end of 270 minutes, but the muscle will live for twenty-four hours. One part of nitro-pentane is not soluble in 1000 parts of salt solution, but it is distinctly more toxic, for the muscle will not contract in a saturated solution for more than six hours; moreover, a certain amount of contracture is sometimes produced, as in the case of many of the amyl compounds.

Action on vessels.—In a strength of 1 in 1000 nitro-methane always dilates the vessels of the tortoise slightly. In a typical experiment a flow of 11 c.c. through the vessels was increased to 15 c.c., an increase of 36 per cent. (Fig. 21.)

FIG. 21.

Effect of nitro-methane on vessels. After dilating twice with nitro-methane solution, sodium nitrite caused much greater dilatation. (As before, the horizontal figures represent the number of minutes during which the fluid was perfused, the vertical figures the number of cubic centimetres flowing through, and the darkly shaded part the period during which the poisonous blood was flowing.)

With nitro-ethane I obtained some rather contradictory results. In one case, from causes which I cannot explain, contraction occurred; on other occasions always dilatation. But the amount of this dilatation varied; sometimes it was not greater than with nitro-methane, in other cases the flow increased to more than 100 per cent. (Fig. 22.) On the whole, the dilating power of nitro-ethane was distinctly greater than that of nitro-methane. Nitro-propane always

FIG. 22.

Effect of nitro-ethane on vessels. The same strength was perfused twice.

very markedly dilated the vessels, the increased flow exceeding 100 per cent. (Fig. 23.) Nitro-pentane is very insoluble in water; the very minute quantity which is soluble (probably not more than 1 in 5000) dilates the vessels, but not so much as nitro-propane. On the heart of the frog nitro-methane in the strength of 1 in 1000 has practically no effect. It may, perhaps, beat a little more quickly, but this is the only influence exerted. Nitro-ethane quickens the heart's action and renders the beat less forcible. (Fig. 24.) Nitro-propane, 1 in 1000, often doubles the speed of the heart beat and weakens it considerably. It is impossible, as I have said, to dissolve 1 in 1000 of nitro-pentane, for it is more insoluble than the other nitro-compounds, but a saturated solution both quickens and weakens the heart's action.

Effects on circulation.—The effects I have so far noticed on the vessels, muscles and heart are due directly to the nitro-compounds themselves. The saline solution in which the muscles have been contracted and the fluid which has passed through the vessels in the perfusion experiments have always been tested for nitrites before and after each experiment, but no trace of nitrites has been found nor has the blood used for the heart experiments shown by the presence of methæmoglobin that nitrites have taken any part in the production of increased rapidity and decreased power. No nitrite is formed immediately when nitro-compounds are mixed with weak alkaline solutions in the cold; but when heat is applied nitrites are in time produced. On mixing, for example, 1 part of each of the four nitro-compounds with 50 of a 5 per cent. solution of sodium carbonate I detected no nitrite immediately, nor did I find any after keeping the mixture at 38° for forty minutes, but in a few hours the presence of a nitrite was detected in all. When nitro-ethane is mixed with blood at ordinary temperatures methæmoglobin is

FIG. 23.

Effects of nitro-propane on vessels. After two perfusions of nitro-propane saline pure saline was allowed to run through the vessels, but no measurements were taken until the following morning.

not formed until decomposition sets in; but if the mixture be kept at 38° it appears after some hours. As in the case of nitrates, it seems to be possible that nitrites are more readily produced after absorption into the circulation—at least an effect on the tension, somewhat like that caused by nitrites, follows. When fifteen minims of nitro-ethane are given by the mouth and the tracing is continuously watched no distinct change is perceived for about a quarter of an hour, when a slight lowering of tension occurs. In thirty minutes this is distinct, hence onwards for nearly four hours the lowered tension continues, but I have not found

FIG. 24.

Tracing taken from excised frog's heart with Kronecker's Froschherz manometer.

the same extent of fall produced as after either nitrites or nitrates; on the other hand, the fall is much more prolonged and may not reach its lowest point until three or four hours after the drug has been given. (Fig. 25.) Sometimes at the end of five hours the tension is still lowered and at other times it has risen to its normal height in four hours. Nitro-propane in a dose of fifteen minims has much the same effect as nitro-ethane; for a short time it seems to have little influence on the pulse, but in three or four hours the tension has become distinctly lowered, and it is five or six hours before the pulse regains its normal condition. After ten minims of nitro-pentane I noticed the first fall of tension in about thirty minutes, but it was seventy minutes before any distinct fall took place. Between three and four hours after the drug had been taken the tension reached its lowest point and the pulse had not quite regained its normal condition in six hours. (Fig. 26.) Very slight effect is produced on the frequency of the pulse by the fatty nitro-compounds; sometimes, but not always, during the lowered tension it is raised from five to ten beats per minute. No headache has been complained of by those who have taken these drugs and no subjective symptoms have been noticed; but my experience of their effects is not yet sufficiently wide to say that headache

and palpitation may not in some be produced. I have not so far proved that in the living body nitro-compounds can be decomposed and nitrites produced; the changes which take place both when nitrates and nitro-compounds are mixed with blood is a subject I propose to investigate further, but either from the gradual development of nitrites or from the action of the whole molecule itself the fatty nitro-compounds possess a power of slowly depressing tension and keeping it down for a lengthened period, which may be found useful in therapeutics provided no bar to their utilisation appears. For the relief of angina pectoris, of course, they can be of no service; to prevent attacks in this ailment and for the relief

FIG. 25.

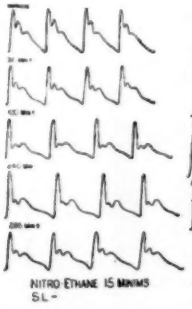
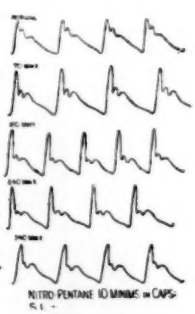


FIG. 26.



of some conditions connected with rise in tension they may prove to be of value.

The NO_2 group does not give a toxic influence to the fatty compounds into which it enters. It differs completely in this respect from the ONO group and resembles the ONO_2 group. Dr. Lauder Brunton has made experiments to determine its action in nitro-benzine, in which compound NO_2 replaces an atom of hydrogen. When benzine (C_6H_6) is injected into the frog it causes some lethargy and renders the spinal cord more excitable, as shown by tremor on movement, eventually paralysing it. Nitro-benzine ($C_6H_5NO_2$) caused the same symptoms. The tremor seemed to be a little greater and the reflexes were abolished a little earlier; but the experiment showed that, so far as the aromatic compound benzine was concerned, the nitro-group plays almost as passive a part as it does in the compounds of the fatty series.

NITROSAMINE GROUP.

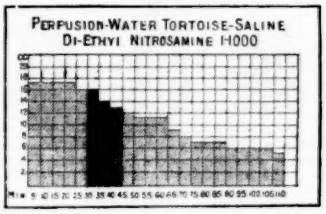
In the nitrosamine group (=N—N=O) an atom of nitrogen replaces one of the atoms of oxygen in the nitroxyl group, and has two links left free for junction with two other groups. It seemed interesting to determine what effect this group would have as compared with the group —O—N=O when joined to fatty radicals. The effect of the junction is to produce a series of liquids extremely unpleasant to smell and taste, soluble in alcohol and also slightly in water. I have experimented with the dimethyl-nitrosamine, diethyl-nitrosamine and di-isobutyl-nitrosamine compounds. The action of the NNO group in no way resembles that of the ONO group, and, notwithstanding their nauseous smell and taste, the nitrosamines are not poisonous to the tissues.

Dimethyl-nitrosamine, $\begin{matrix} CH_3 \\ | \\ N—N=O \\ | \\ CH_3 \end{matrix}$, is not fatal to muscle in the strength of 1 in 1000, and the diethyl-nitrosamine is equally innocuous, but when the butyl element takes the place of methyl or ethyl the resulting compound (di-isobutyl-nitrosamine) will, in the strength of 1 in 1000, kill the muscle in about two hours. The diethyl- and dimethyl-nitrosamines have no influence on the vessels; in the strength of 1 in 1000 they do not either contract them or dilate them. (Fig. 27.) They slightly quicken the isolated heart, and then weaken it in the strength of 1 in 1000, but this organ bears the presence of the ethyl and methyl compounds quite well. I have not tried the effect of the nitrosamine compounds on the general circulation; their nauseous character renders it manifest that they can never be of practical therapeutic importance, and whilst I have had volunteers willing to take nitrate, nitrite and nitro-compounds no one after once tasting the nitrosamines desired to go further. The chief point of interest in connexion with their action on the various tissues is their harmlessness. The butyl compound killed muscle rapidly, but this is to be expected where there are two butyl molecules.

THE HYPONITRITE GROUP.

In most books on chemistry the existence of hyponitrites is alluded to, and hyponitrous acid is represented as having the formula HNO, the sodium salt being represented as NaNO. It would have been highly interesting, had this been the case, to have ascertained the difference of the influence of the group NO and ONO in the respective compounds they form with sodium and the fatty radicles. Zorn, however, from his investigations on hyponitrous ether, has come to the conclusion that the hyponitrites are, as I have said in my first lecture, diazo-compounds, consisting of two molecules of the group NOH, the nitrogens of which are

FIG. 27.



united by a double link. It seemed to me, nevertheless, of interest to determine, if possible, the comparative effect on tissues even of this double group as compared with the group ONO. Unfortunately the sodium hyponitrite is extremely unstable, solutions readily decomposing, free soda being left in the solution, which becomes very alkaline. It is very difficult therefore to judge how far the effect produced by sodium hyponitrite is due to the hyponitrite molecule or to free soda. I find that 1 of sodium hyponitrite in 1000 of normal salt solution will kill the gastrocnemius of a frog in an hour. When perfused through the tortoise the vessels contracted so strongly as entirely to stop all fluid passing through them. The beats of the heart were rendered irregular and slow when 1 of sodium hyponitrite in 1000 of blood was passed through it. The experiments I have made are, however, of doubtful value, because of the free alkali present. The neutralisation by hydrochloric acid of the hyponitrite saline solution altered the shape of the muscle tracing, which, with the alkaline hyponitrite solution, had the appearance usually seen after alkaline solutions, but did not materially diminish toxicity.

THE OXIME GROUP.

Of late years a large and chemically interesting group of compounds has been produced called "oximes," which contain the group NOH united by a carbon element either to two fatty radicles or to one fatty radicle and a hydrogen.

Aldoxime, $\begin{matrix} CH_3 \\ | \\ C = NOH \\ | \\ H \end{matrix}$, is one of the best-known examples of this group. If CH_3 is replaced by ethyl (C_2H_5) propyl-aldoxime is formed. Isobutyl and other homologous oximes can in the same manner be produced by replacing C_2H_5 by higher members of the fatty series. At my suggestion two years ago Dr. Pomfret, at that time one of the Berkeley Fellows in Pharmacology, investigated in my laboratory at Owens College the effect of a series of these oxime bodies with a view of ascertaining how far they possess any pharmacological type which can be referred to the presence of this group in their structure. I propose to refer briefly to the action of three of them in order to illustrate the influence of the NOH group. Aldoxime or ethylaldoxime is a colourless fluid miscible in all proportions with water; it is remarkably free from all poisonous action on skeletal muscle. The gastrocnemius of a frog will live in a mixture of 1 part of aldoxime in 200 of normal salt solution for twenty-four hours. In solution of more than 1 per cent. contracture is produced, but even in 1 in 50 a muscle will

live for more than two hours. Propyl aldoxime (C_3H_6NOH) acts on skeletal muscle like ethyl aldoxime, but contracture is produced by more dilute solutions. It is also more toxic. In a solution of 1 in 200 a muscle lived for over four hours. Isobutyl (C_4H_8NOH) aldoxime is still more toxic to muscle. A muscle dies in 1 part of this compound to 200 of normal salt solution within an hour. Contracture comes on more quickly and is more marked than with either the ethyl or propyl compounds. On the bloodvessels of the tortoise the effects of ethyl aldoxime vary with the strength of the solution; 1 in 1000 always increases its flow; stronger or weaker solutions usually cause a primary contraction, followed by slight secondary dilatation. Propyl aldoxime invariably dilates the vessels. The dilatation is much greater than that brought about by ethyl aldoxime. Isobutyl aldoxime in weak solutions also dilates the vessels. In the perfusion of organs of warm-blooded animals Dr. Pomfret notes that a different effect is produced on the vessels according to the time which elapses between adding aldoxime to the blood and perfusing it. When blood is mixed with aldoxime shortly before perfusion a primary contraction of the vessel is invariably obtained. If the blood and aldoxime stand in an open vessel for two or three hours dilatation at once results on perfusion. This fact led him to make an examination of the effects of aldoxime on blood, and he then found that, though on adding aldoxime to blood no change at first takes place, after standing for a few hours the blood darkens and the spectroscope shows that this darkening is due to the presence of methæmoglobin. At the temperature of the body methæmoglobin is produced in from fifteen to twenty minutes. From further examination he found that aldoxime, when mixed with blood, breaks up into hydroxylamine and aldehyde. Hydroxylamine has been shown to form in alkaline fluids a nitrite of the alkaline metal, and thus the addition of aldoxime to blood leads to the formation in it of aldehyde and nitrite of sodium. Pursuing his research, he investigated the physiological properties of the aldehyde group and discovered that aldehydes have a directly opposite effect to that of the nitrites; they stimulate muscles and contract vessels. When the perfusion of warm blood containing aldoxime through an organ takes place soon after the aldoxime is mixed with the blood the presence of aldehyde causes the vessels to contract. If some time is allowed to elapse the aldehyde, being volatile, escapes, and the nitrites which have been formed dilate the vessels. The action of propyl and isobutyl aldoxime on the vessels of warm-blooded animals does not materially differ from that of aldoxime. On the heart aldoxime has very little effect; there are an increased rate of beat and an increased heart tonus. Strong solutions sometimes arrest the heart in systole and sometimes in diastole, the varieties being due to the same decomposition which has been noticed in the perfusion of blood. The longer the aldoxime remains in contact with the blood the less is the tendency to systolic contraction and the greater is the tendency to diastolic arrest. The other oximes, propyl and isobutyl, also produce acceleration of the rhythm, but have a slightly depressant action. Strong solutions, 1 in 200, of propyl aldoxime did not diminish the amplitude of beat after three hours. Isobutyl aldoxime is much more poisonous. On the circulation generally aldoxime has but a slight effect. The increased tone which is produced by it in the isolated heart of the frog is not observed in warm-blooded animals because of the formation of hydroxylamine and nitrites, but instead of this a slight lowering of tension is seen in from twenty to thirty minutes after the drug has been taken. The NOH molecule also joins with or enters into aromatic groups. Dr. Pomfret has investigated the action of quinoxime (C_6H_4ONOH), of salicyl aldoxime ($C_6H_4OHCHNOH$) and benzaldoxime (C_6H_5CHNOH). He finds that the effect of the group NOH in producing contraction of the muscle is seen in these aromatic groups and that all dilate the vessels. I have given a very brief account of the results obtained from an examination of the fatty compounds containing the NO, N—NO, and NOH groups, because, though what has been noted concerning them is interesting as giving an indication of their influence, the compounds themselves are not likely to prove of any therapeutic value. It is quite possible, however, that amongst the aromatic compounds which contain the oxime group we may find substances of some utility, but these I have not myself examined.

Summary.—The investigations I have so far made with the view of determining the influence of the groups containing nitrogen and oxygen are, as I said in my first lecture, only preliminary. To determine accurately the action of a group of molecules we must compare the effects of a large number of compounds containing them, both in the fatty and aromatic series, and we must compare these effects, too, not only on muscles, vessels and heart, but on all the tissues and organs of the body. This is a work which involves very large expenditure of time. I have ventured, however, to bring forward the results so far obtained. It has long been known that the influence of certain elements in a compound varies according to the number of affinities by which they are united with other elements in the compound, and the groups I have alluded to seem to furnish an example of this. For reasons into which I need not enter here chemists are of opinion that in the nitroxyl or nitrite group nitrogen is a triad element, whilst in the nitrate and nitro-groups it is pentad. It may be to this, as well as to the different manner in which two oxygens combine with the nitrogen in the nitrite and nitro-groups respectively that we must attribute the marked difference in their effects. It will be noted that there is some evidence that the hyponitrite group, in which nitrogen also plays the part of a triad, is distinctly toxic, like the nitrite group. The instability of the two triad nitrogen groups may enter to some extent into the causation of their toxicity, but for reasons which I have given it seems to me that, in the case of the nitrite group at least, the molecules of the group itself in some way or other play a definite part in the physiological effect which the compound containing them produces. The addition of another nitrogen to the group NO completely changes the influence which the group NO has by itself, or when associated with another atom of oxygen. The addition of a hydrogen element to the NO group seems equally to modify its influence. The nitrosamines, as far as they have been examined, affect the tissues very slightly. The oximes, at least those of the fatty series, are singularly free from poisonous properties, but the NOH group shows a peculiar influence on muscle contraction. Throughout the experiments the increasing toxicity of the fatty series as the weight of the molecule increases has been very marked. The toxic action of the pentane and butane compounds has been always distinct. A very remarkable feature has been the influence which compounds containing propyl have in dilating vessels. Nitrate of propyl has singular power in this respect; nitro-propane dilates more than any other of the nitro-compounds; and Dr. Pomfret found that of the aldoxymes, propyl aidoxime was the most efficient vessel dilator. Butyl and amyl compounds, if used in the same strength as the propyl compounds, contract instead of dilating vessels; they seem to act as irritants to muscular tissue unless in very dilute form, and the contracture which I have noticed as often occurring with amyl compounds shows that an analogous effect is produced on voluntary as well as on involuntary fibre.

In conclusion let me say it has not been in any way my purpose to search for new remedial agents, but it seems possible a use may be found for some of the compounds I have examined. I allude to the nitrates and the nitro-compounds. They resemble in their powers the nitrites which we have so long been accustomed to use; probably, indeed, their influence is due to the development of nitrites from them. Yet if they possess the pharmacological properties which, from the examination I have so far made, they seem to have, they may possibly be advantageously employed when we want to influence the vessels more or less markedly for a long time. It has been said with truth that what is now wanted is not a further supply of new remedies but a better knowledge of the way in which to use the old ones. It seems to me, however, that if therapeutic knowledge is to advance we must acquire more information than we now possess as to the exact method in which these older remedies act, we must know how they break up in the body, and know, too, the new and often simpler combinations they are capable of forming and how these act. The exact method in which the complex compounds of the organic kingdom influence the body we have not yet sufficient knowledge to comprehend; it is with the simpler compounds we must commence investigations, but a wider and deeper knowledge of the effect of these simpler compounds will surely open the way for the acquirement of further information with regard to the more complex ones. At present, even concerning the simple ones our knowledge is very small. It was with the hope of making some slight addition to this knowledge that the work of these lectures, which I have had the honour of being invited to give, was commenced. For this honour let me again thank you.

A Clinical Lecture
ON
THE PHYSICS AND DIAGNOSIS OF PLEURAL EFFUSION.

Delivered at the North London Hospital for Consumption, June 21st, 1893.

BY G. A. SUTHERLAND, M.B. EDIN., M.R.C.P. LOND.,
PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—In studying the subject of intra-pleural effusion, as it is commonly described in the text-books, one is led to regard the fluid exuded as the active agent which causes displacement of the various thoracic contents and boundaries. For example, such expressions as the following are constantly met with, "the fluid presses upon the lung," "the heart is pushed over to the opposite side," "the diaphragm is pushed down." As a result of this teaching attention is concentrated on the physical signs at the site of the effusion, and these are so variable that the student is puzzled and in many cases no satisfactory explanation is forthcoming. Another method,[1] and, as I hope to show you, a more correct one, is to regard the fluid exuded as to a large extent a passive agent, and, whilst not neglecting the physical signs in its neighbourhood, to look also at the active agency in the production of the various changes—namely, the elasticity of the lungs. In considering this question I shall refer to a few familiar points in connexion with respiration which bear directly on the subject. There are three chief factors concerned in the mechanism of respiration: (1) the expansion of the chest wall; (2) the depression of the diaphragm; and (3) the elasticity of the lungs. Whilst the two former are intermittent, the elasticity of the lungs is constantly in action, its tension varying only in degree at the different periods of inspiration and expiration. Under normal conditions the two pleural surfaces are in close apposition, and as the lungs, by virtue of their elasticity, are always trying to pull these two surfaces apart, the result is that the intra-pleural pressure is negative—that is to say, less than the pressure of the atmosphere. If this negative pressure is to be made positive, the elasticity of the lungs must first be completely exhausted. You are also aware that the lungs, by their expansion, exert an opposing influence on each other, and, were this action not equally balanced on the two sides, we should find the mediastinum drawn towards the stronger. Under normal conditions, however, a suction or aspirating force is applied to each side of the mediastinum during inspiration, which is a powerful factor in drawing the blood into the heart and large veins. This force is also due to the elasticity of the lungs.

Passing now from these physiological considerations, let us look at the condition of affairs on the occurrence of pleurisy, premising at the outset that the lungs and pleura have not been impaired by previous disease. The initial stage is a local inflammation, with congestion and loss of tone in the vessels of the part affected, and accompanied by hyper-secretion of fluid from the lining cells of the pleura. The elastic force of the pulmonary tissue at once comes into play and it retracts to a certain extent, and the continued action of this force will tend to draw more fluid out of the bloodvessels. Under normal conditions the forces which lead to effusion and those which lead to absorption are equally balanced, and the pleural cavity is, in consequence, never over-filled. When inflammation has commenced this equality is destroyed. The onset of the affection is accompanied by diminished movement on the injured side—that is to say, the activity of the intercostal muscles and of the diaphragm is lessened. It has been experimentally shown that if fluid be injected into the pleural cavity of animals it will be rapidly absorbed through the stomata of the parietal pleura if forcible respiration be performed; but if quiet breathing is allowed little or no absorption takes place. In other words, the expansion of the chest wall in forced expiration exerts an aspirating power which is superior to the aspirating power of the lung elasticity, and consequently the fluid is absorbed. The removal of this factor by the diminished movement of the affected side in pleurisy leaves the elastic traction of the lung unopposed. Again, if we consider the action of the sound side in pleural effusion, we notice that the movement is exaggerated and that the expansion of the lung is increased. The balance between the opposing pulmonary forces is therefore disturbed and the elastic tension of the sound lung is increased, whilst that of the lung on the affected side is diminished. What will happen? The mediastinum and heart will be drawn towards the sound side by the elastic traction of the lung, and the same force, passing through the mediastinum and the affected lung, will tend still further to aspirate fluid into the pleural cavity at the seat of inflammation. We have thus three conditions present which encourage effusion—namely, (1) the elasticity of the lung on the affected side, (2) the diminished movement on the affected side (prevention of absorption), and (3) the elasticity of the sound lung.

Let us turn now to the condition of the exuded fluid. All are agreed that this will gravitate to the most dependent part—namely, the posterior and inferior region of the pleural cavity. You will note also that this area lies in the longest diameter of the lung and that the pulmonary tissue occupying it is subjected to greater distension than that in any other part, and consequently we should expect the lung elasticity to come into play here sooner than elsewhere. The books will tell you that the fluid, even whilst still moderate in amount, exerts pressure all around—on the lung, on the diaphragm and on the chest wall. Suppose it were pressing on the chest wall, the introduction of a trocar ought to be followed by the rapid exit of the fluid; but, as you are aware, an aspirator is required to withdraw it. It is no answer to say that when a trocar is used the fluid is kept back by the external atmospheric pressure, for there is atmospheric pressure acting also inside the lung along the still patent bronchi. If you insert a tap in a beer barrel at a level lower than the upper surface of the contents and then remove the vent peg, you naturally expect the contents to run out until the level of the fluid corresponds with the level of the tap. Similarly, if you insert a trocar in a pleural effusion, with free entrance of air through the patent bronchus (vent hole), you naturally expect the fluid to run out; but, with the exception of a slight flow during expiration, due to increased intra-pulmonary pressure at that period of respiration, little or none comes away. We must, therefore, look for some stronger force which keeps the fluid in its position in opposition to the laws of hydrostatics. Again, were this fluid pressure present, the chest wall ought to bulge, especially opposite the intercostal spaces, but, as a matter of clinical experience we do not find that this occurs. The intercostal spaces are not bulging, and although the circumference of the chest wall is slightly increased on the affected side, this is mainly due to the resiliency of the ribs there, whilst the most marked increase in circumference is on the sound side. As regards the diaphragm, it is not depressed; but, on the contrary, in many cases it is elevated, a condition which you will see most marked in cases occurring amongst children. If, then, the effusion is not pressing directly on the surrounding structures it must be held in suspense by some strong force, and this is what actually occurs, the force in question being the elastic tension of the lung. It is this force which, in addition, raises the diaphragm, holds in the intercostal spaces and prevents the fluid from flowing out on simple puncture of the chest. So far we have been speaking of the condition when the effusion is moderate in amount. Let us now follow out the alterations as it increases. I have already stated that before the intra-pleural pressure can become positive it is necessary for the elasticity of the lungs to be exhausted, but in the case of a fluid effusion a slight qualification is required. As the fluid increases in amount the elasticity of the lung is lessened by the retraction of the pulmonary tissue. At the same time the fluid, by virtue of its weight, exercises an appreciable negative pressure on the retracting lung, so that finally a point is reached when these two opposing forces are equal, and any further effusion will at once exert a positive pressure on the lung. At this stage we begin to have pressure symptoms, such as compression of one lung or of both lungs, depression of the diaphragm and bulging of the chest wall, and the greater the increase of fluid the more marked will those symptoms be. You will perceive, then, that there are two distinct stages in pleural

[1] This method is based on the writings of Dr. Douglas Powell (Diseases of the Lungs and Pleura &c.) and Dr. G. M. Garland (Pneumono-dynamics, 1878).

effusion, the first whilst the pressure of the fluid is negative and it is held in suspense by the elasticity of the lungs, and the second when the pressure of the fluid is positive, the lung elasticity having been exhausted. In the first stage we may have various displacements owing to the elastic tension of the lungs drawing the organs out of their normal position; and in the second stage displacements are due to the pressure of the fluid pushing the organs out of their normal position.

In considering the question of the physical signs of fluid in the pleural cavity I shall not lay much stress on the evidence to be gathered over the site of the effusion, for you will find this given very fully in the text-books, but shall direct your attention more particularly to the condition of the lungs (active factors) and the displacements of the heart and diaphragm (passive factors). The position which the lung on the affected side takes up is very important. It retracts first of all from the posterior surface of the diaphragm and moves upwards; then, as more fluid is exuded, it passes towards the mediastinum, the posterior part lying in the hollow along the spine. This is not the result of any fluid pressure, but is the natural position of the lung when collapsed, as you can see for yourselves on opening the cadaver or on examining the lungs of an infant which has never breathed, and is in accordance with the laws of elastic bodies, which tend to assume a definite form when extension is removed. In acquiring your knowledge of the physical signs of pleuritic effusion I strongly advise you to take every opportunity of studying these in children, for in them the chest walls are comparatively thin, and you can therefore make out distinctions of percussion and auscultation which are not perceptible through the thicker chest walls of an adult. In children, also, the lung elasticity is great and the results of this elasticity which I am about to describe are more clearly shown than in adults.

For the sake of clearness let us take a case of moderate left-sided effusion, the fluid extending half-way up the scapula. In percussing out the lung on the affected side you will find that the shape of the lower margin is altered, and that instead of sloping down from before backwards its highest level is now situated slightly behind the posterior axillary line. From this it passes downwards in front towards the sternum and downwards behind to the spinal column, forming an irregular line which is known as the S-shaped curve. In tracing this out you must percuss lightly from above downwards and mark the points at which resonance entirely ceases and absolute dulness or flatness commences. By connecting these points you will form the S-shaped curve; above it you have the retracted lung and below it you have the fluid effused. Now if we hold that the effusion is pressing up the lung I do not know of any reason why the upper surface of the fluid should assume this fantastic shape, but if we admit that the lung is holding up the effusion you will understand at once that the outline of the fluid follows exactly that of the retracting lung and thus the S-shaped curve is produced. This curve is present during the whole of the first stage of pleuritic effusion, its shape and situation varying with the amount of fluid. The posterior part of the curve passes downwards and forms an angle with the spinal column. The area included in this angle is one of great importance, and was called by Dr. Garland "the dull triangle," the third side being formed by an imaginary line drawn from the summit of the curve perpendicularly to the vertebral column. On percussing this area, proceeding from the spine outwards in horizontal lines, you will find that whilst there is dulness for an inch and a half or two inches there is not a complete absence of resonance until you cross the curved line. The reason is that beneath the dull area lies the retracted but not airless lung, whilst further out there is the fluid immediately below the chest wall. On auscultation over the dull triangle the breathing is of the blowing or bronchial type and vocal resonance is quite audible, whilst over the fluid effusion at the same level both of these are much diminished or are entirely absent. The importance of these signs in diagnosing between pleuritic effusion and lobar pneumonia is very great, for in the latter there are no alterations in the percussion, the breathing and the vocal resonance such as I have described. The audible breathing along the spinal column is mentioned in the text-books, with the explanation that it is transmitted from the opposite lung, but the reason why it should also be changed from the vesicular into the bronchial type by osseous conduction is not stated. On the other hand, it is easy to see that the breath sounds are transmitted better through a collapsed part of lung than through a mass of fluid. Another part of the chest where important information as to the state of the lung beneath can be learned is that lying immediately below the clavicle on the affected side. On percussion here a tympanitic note is elicited, varying in pitch with the extent of the pulmonary retraction. This is known as "Skodaic resonance," and it may be present over a considerable part of the chest wall anteriorly and is also sometimes found in the supra-spinous fossa. The cause usually ascribed is the diminished tension in the retracting lung.

Now let us consider the lower part of the affected lung outside the dull triangle of Dr. Garland. In some cases, and frequently in children, you will find that the percussion note over the whole of the lung is dulled, and that bronchial breathing is present, and this condition points to extreme retraction, the lung probably being airless. More commonly those signs are limited to the part of the lung immediately above the effusion. The area over which these sounds are heard does not usually extend for more than an inch above the level of the effusion, and it may be characterised still further by the presence of crepitations, or friction, or both. The friction sounds are of course due to the fact that the inflammation of the pleura often extends beyond the limits of the exudation. The other conditions are frequently ascribed to collapse of the lung at that part, the theory being, as stated by Dr. Hilton Fagge,[2] that, "whenever even a small part of the lung fails to be acted on by the forces which are concerned in inspiration, its elasticity brings about a total collapse of its substance, notwithstanding that the tubes which serve it may be patent." Another explanation is that owing to the obstruction to the circulation through the retracted lung there is a certain amount of hypostatic congestion which shows itself in the layer of solid tissue at the lower border of the lung, and this I believe to be the correct one. Dr. Hilton Fagge found his theory useful in explaining the fact that a simple fluid effusion does not follow the laws of gravity and change its level with a change in position by the patient, a point which has never been satisfactorily cleared up by the supporters of the view that the fluid is pressing on the lung. He wrote,[2] "If a certain part of the lung is rendered altogether airless by pleuritic effusion it is easy to see how the fluid may, as it were, be held up in a fixed position in opposition to the force of gravity." Omitting any notice of the novel laws of elasticity which this theory involves, I think it is easy to see that if a certain part of the lung is rendered altogether airless its tendency will be to sink to the bottom of the fluid and not to be found at the top, and far less to be holding up a mass of fluid against the force of gravity. By the explanation which I gave you we also found that there was a layer of solid lung immediately above the level of the fluid. This will be kept in position by the elasticity of the lung, just as the fluid is. If, however, the area of hypostatic congestion is increased, so that a considerable portion of the lower lobe is involved, the weight of the solid part will eventually overcome the elasticity of the remainder and the lobe will sink in the fluid, which becomes spread out around it. This stage is shown clinically by the presence over the fluid of loud bronchial or tubular breathing, with increase of vocal resonance, the signs, in short, of a basal pneumonia, which are conducted through the thin layer of fluid.[3]

Let us next consider the effect of a moderate pleuritic effusion on the diaphragm. On the pressure theory the weight of fluid will at once press the diaphragm in the line of least resistance—that is, downwards—and an early symptom ought to be bulging below the costal margin. Also, as the resistance on the left side is less than that on the right, owing to the presence of the liver in the latter and the stomach in the former, we should naturally expect that diaphragmatic displacement would be manifest earlier in the the case of a left-sided effusion than in a right one. If you test these points clinically you will not find them supported by any evidence. On the contrary, bulging below the ribs is a late symptom of pleuritic effusion, and points to the presence of a very large amount of fluid, whilst diaphragmatic depression is manifested sooner when the exudation is in the right pleura than when it is in the left. Some other explanation than that of pressure must therefore be looked for, and this is to be found in the elasticity of the lungs. In the case of a right-sided effusion the elastic retraction of the

[2] Principles and Practice of Medicine, 1888, vol. ii., p. 167.
[3] Clinical Lecture on Pleurisy with Effusion, by Dr. Broadbent. THE LANCET, May 24th, 1884.

lung is opposed by three forces: (1) the weight of the fluid, (2) the action of the diaphragm and (3) the weight of the liver. If the patient is in the sitting position these three all act in the same direction—that is, downwards. When the effusion is on the left side, the lung has only two of these forces to support, the weight of the liver being absent. It follows that the elastic force of the lung will be balanced by these negative forces more quickly on the right side than on the left, and any subsequent increase of fluid will be manifested by a sinking downwards of the diaphragm and liver, whilst with the same amount of effusion on the left side there is no displacement. If, then, in a case of right-sided pleural effusion you find on percussion and palpation that the liver is depressed you will know that the intra-pleural pressure is positive and that the amount of exudation is therefore great.

Now, what information is to be gathered as to a left-sided effusion by observing the effect of lung elasticity on the diaphragm? The position of the diaphragm is here ascertained clinically by percussion of the stomach, the upper border of which follows the movements of the diaphragm. In the normal condition, as you are aware, a portion of the stomach lies behind the lower and anterior part of the chest wall on the left side and can be mapped out as a concave area, the concavity of which is directed downwards. This is known as the semilunar space of Traube, who first called attention to its importance in the diagnosis of pleuritic effusion. In the early stage the action of the diaphragm is diminished, whilst the elasticity of the lung is still strong. The result is that the diaphragm is drawn up into the chest even higher than it is during normal expiration, and this fact is learned clinically by an extension upwards of the tympanitic resonance which is heard on percussion over the semilunar space. This is a sign of great importance in distinguishing between pneumonia and pleural effusion. It is not found in the former or in any acute pulmonary disease save fluid effusion in the pleura. It is, of course, a well-marked sign in advanced contraction of the lung due to pleuritic adhesions or to fibroid changes of long duration, and these must be carefully excluded before any conclusions are drawn. You must also see that no increased intra-abdominal pressure is present, which would push the stomach upwards. As the fluid increases in amount, it passes to the front and the semilunar space is diminished in extent, until finally, when the exudation is very great, the diaphragm and stomach are depressed and the tympanitic note of the semilunar space is entirely obliterated.

The alterations in the physical signs over the sound lung are not directly of great value. The measurement of the unaffected side of the chest wall usually shows a slight increase, which may be appreciable if quiet respiration is present, and which will be greater according to the amount of dyspnœa. The breath sounds are of the puerile type—that is to say, harsh, vesicular, with prolonged expiration. Of more importance are the results of the unopposed action of this lung on the mediastinum and its contents. Instead of the equally balanced traction on the two sides of the mediastinum by the expansion of the lungs and the consequent filling of the heart and large veins with blood, there now exists a single force tending to draw the mediastinum as a whole towards it—namely, the unopposed traction of the sound lung. The heart must therefore depend on its own action for emptying the veins as well as for filling the arteries, and this leads frequently to considerable cardiac embarrassment, as shown by a weak and irregular pulse. I do not wish to ignore another factor here, on which much stress is often laid—namely, the impeded circulation through the collapsed lung; but I think this is balanced to a certain extent as regards the heart by the freer movement of blood through the sound lung. In considering this question of circulatory disturbance a third factor of great importance comes in—namely, the displacement of the heart itself. This is usually ascribed in the text-books to the pressure of the effused fluid; but I wish to call your attention to the fact that there may be cardiac displacement when the effusion is still moderate in amount—at a time when the fluid is not in contact with the heart but separated from it by collapsible pulmonary tissue. It is difficult to see how any actual pressure can be exerted under these circumstances. We have already seen that the lung on the sound side gains in elasticity by the loss on the affected side, and that consequently the mediastinum is drawn towards the sound side. This action is directly proportional to the amount of fluid effused, and therefore the cardiac displacement is dependent on (1) the quantity of fluid present and (2) the amount of elasticity in the sound lung. As the elasticity of the lung in early life is greater than in later years you will expect to find the cardiac displacement manifest at an earlier period in the case of children, and this is what actually occurs. We have, unfortunately, no very exact clinical means at our disposal for estimating accurately a small amount of cardiac displacement. By palpation we ascertain the position of the apex beat and by percussion we determine the lateral boundaries of the heart. We then note whether these correspond with the normal conditions, and, what is of more importance, we observe, as the illness proceeds, whether there is any change in the position of the heart on repeated examination. The amount of pulmonary tissue covering the heart varies to such an extent that accurate measurements are extremely difficult and in the case of adults they are almost impossible. Deviations of less than half an inch are not, therefore, of much clinical value. Another source of fallacy lies in the fact that the right side of the heart may be overfilled and the percussion dulness therefore increased to the right of the sternum. It is well known that a left-sided effusion produces more cardiac displacement than a right-sided one of equal extent. On the pressure theory this is difficult to explain, and one distinguished physician[4] has solved the difficulty by denying the fact and has maintained that it is really over-distension of the right ventricle which is mistaken for cardiac displacement. This explanation has not been generally accepted, but the clinical difficulty is easily understood when we regard the elastic traction of the sound lung as the cause of cardiac displacement. The movement of the heart which is of importance clinically is in the lateral direction. Now the heart is situated normally to the left of the middle line. If, then, we compare the amount of elastic traction which can be brought to bear on the heart, we find that this is greater on the right side than on the left, because there is more lung tissue between the heart and the right side of the chest wall than between the heart and the left side of the chest wall. Consequently in the case of a moderate effusion on the left side the cardiac displacement will be manifest sooner than if the effusion is on the right side, and even when the fluid increases and positive pressure is brought to bear on the heart the effect of the lung elasticity in the early stages will still be apparent.

I have not hitherto stated definitely the signs which mark the period of effusion when the intra-pleural pressure becomes positive. Dr. Douglas Powell[5] considers that this stage is reached if, when the patient is in the sitting position, the absolute dulness extends above the third rib anteriorly and the Skodaic resonance is lost. This, as you will perceive, indicates the presence of a very large amount of fluid. Direct evidence of positive intra-pleural pressure is to be found, as already stated, in the depression of the liver on the right side and in the obliteration of the semilunar space of Traube on the left, and in a rush of fluid from the pleural cavity on the introduction of a trocar. The first stage, however, passes so gradually into the second that it is extremely difficult clinically to diagnose the exact period; but a marked amount of positive pressure is quickly followed by an increase in the symptoms present—such as breathlessness, faintness, and weak cardiac action.

WHAT CONSTITUTES THE ACHING STRUCTURE IN HEADACHE?

BY HARRY CAMPBELL, M.D. LOND. &c.,
ASSISTANT PHYSICIAN TO THE NORTH-WEST LONDON HOSPITAL.

THE purpose of this paper is to give a historical sketch of the views which have been held regarding the seat of the pain in headache. Before doing so it will be well to define exactly what is meant when it is said of any part that it is the seat of pain. It is now known that, as a matter of fact, all sensations arise in connexion with the brain and are only mentally referred to various parts of the body. When, therefore, a part is spoken of as being the seat of pain, it is meant that the pain, which arises in consequence of certain cerebral processes, appears to the eye to proceed from that part. This is the *mental* criterion of what constitutes the seat of pain. It will be seen that the aching part is not, in

[4] Dr. Moxon: THE LANCET, Jan. 12th, 1884.
[5] Loc. cit.

the strict sense of the term, painful—i.e., full of pain—since pain, so far as it is possible to speak of it as having any position in space, would be most accurately placed in the brain. Seeing, however, that mental phenomena have no relation whatever to space, one cannot rightly speak of a sensation occupying any part of space. To the ancients no such difficulties presented themselves. They did not, as we do now, regard mind as absolutely distinct from matter, but rather as an attenuated form of it—a view of which traces still survive in such words as "spirit," "soul," "ghost," "mind," all of which are related to the word "wind," the wind not unnaturally being regarded by them as a refined, attenuated form of matter, to which what they conceived to be the subtle material essence of mind bore, to their imagination, some resemblance. When, therefore, the ancients spoke of a part as being painful they regarded it as pervaded by a sentient substance—spirit; but the mental criterion by which, as I have said, the seat of a pain is determined is by no means adequate in all cases, and in no case less so than in headache. Defining this latter as pain felt anywhere above the base of the skull, it is obvious that the pain of headache may be seated (I use the expression in the sense indicated above) in many different structures. The aching structure may be (1) the brain itself; (2) its membranes—the pia mater, arachnoid and dura mater—these including the tentorium cerebelli, the falx cerebri and cerebelli and the large fold of pia mater forming the velum interpositum; (3) the skull-bones and mucous membranes lining the frontal, ethmoid, sphenoid and mastoid sinuses and the middle ear; and, finally, (4) the structures covering the cranial vault, including the scalp, the skin of the forehead and temples and all the tissues lying between these and the bone—viz., the pericranium and certain aponeuroses and muscles. Now, it is very seldom that a person suffering from headache can definitely refer the pain to any one of these structures, and therefore the mental criterion is practically useless in determining the seat of the pain in headache. Wherefore one has to fall back upon another test, which may be termed the "physiological." Where any part of the body capable of feeling pain is irritated so as to cause pain, certain nervous arrangements in the cortex are agitated and the concomitant pain is referred, with more or less definiteness, to the part irritated. All the structures above the base of the skull which are capable, when irritated, of feeling pain have such nervous arrangements, or, to use a more convenient term, algenic centres, allotted to them, and when without any peripheral irritation the algenic centres of any portion of these structures are being agitated that portion constitutes the seat of the pain. It is clear that headache may result from irritation of the aching part (as may happen in the pain of megrim, which some attribute to colic of the temporal or other artery) or that it may arise independently of such irritation. In the former case what is meant by the "seat of the pain" is at once manifest, but in the latter case the notions on the subject would be obscure were not the physiological criterion applied. Suppose, for instance, that the pia mater is free from irritation of any sort, but that the algenic centres belonging to it are being agitated: the pain not being definitely referred by the patient to the pia mater, it would be impossible without this second criterion to speak of it as having any "seat" at all. It is thought by some that the brain itself is incapable of feeling pain—that no kind of irritation of its own substance will provoke pain; and if such is the case then it must be supposed that the brain has no special sensorial nervous system, no sensory nerves distributed throughout its substance and connected with special centres in the cortex. At first sight it seems strange that the brain, consisting, as it does, of the largest and most complex mass of nervous matter in the body, should not be exquisitely sensitive to pain. On a little reflection, however, it will be seen that a part is sensitive only by virtue of sensory end-organs distributed throughout its substance and that it is impossible for it to be sensitive without these. If a sensory fibre is stimulated in its continuity, the resulting sensation—if, indeed, any sensation result—is referred, not to the point of the fibre irritated, but to its peripheral distribution; whereas if a *nerve* containing sensory fibres—say, the ulnar—is stimulated a sensation is felt both at the spot stimulated and at the peripheral distribution of its fibres. The former sensation is due to the irritation of special sensory end-organs belonging to the nervi-nervorum distributed to the nerve-trunk and on which the pain of neuralgia depends; the latter to the irritation of the sensory fibres of the ulna in their course. A sensory nerve-fibre is in its continuity far less responsive to irritation than its end-organ—the retina, e.g., is far more sensitive to stimuli than the optic nerve. Were this otherwise, the results would be disastrous—the slightest irritation in the posterior portion of the hind limb of the internal capsule, for instance, would give rise to sensations all over the body and to the various special sensations of sight, hearing, taste and smell.

Having cleared up these preliminary points I may address myself to the proper subject of this paper. It is remarkable that the views of the ancients respecting the structures involved in the pain of headache were very much the same as those of to-day. They for the most part excluded the brain and fixed the seat of the pain in extra cerebral structures, such as the meninges, pericranium and scalp. This view has been maintained by all writers of importance, with one or two exceptions, down to the present time. Hippocrates does not seem to have expressed any very definite opinion on the subject. Galen, whilst not altogether excluding the brain,[1] seeing that he regarded the arteries and veins as capable of sensibility, certainly looked upon the meninges and pericranium as the chief seats of headache. The following passage from Bonetus sets forth his views[2]: "The pain may be spread throughout the entire head or affect only some one part of it, and it may be internal or external. By internal pain I mean pain in the membranes or the substance of the brain or the veins, arteries and nerves, of which some are more, others less, sensitive." There can be no doubt that the meninges and the nerves are the most sensitive, and it is thus that they perceive the pangs of pain the more vehemently; but it would rather appear that the arteries, the veins and the brain substance suffer from that dull and heavy pain which is wont to attack parts endowed with weak sensibility. We are not justified in assuming that these parts are altogether devoid of sensibility, for Galen[3] mentions the veins and arteries amongst the structures capable of perceiving pain, speaking very plainly regarding the arteries[4]. He has pronounced the brain to be "devoid of sensibility"—a dogma which Bonetus goes on to question—and he gives reason for believing that the brain is sensitive. He regards heaviness in the pain as indicating that it is situated in the substance of the brain rather than in the meninges. In the latter case it is "pungent and acute," whilst when the osteal membranes are involved it is "bruising." Finally, he gives special ways of distinguishing pain in the arteries from pain in the nerves. Galen gives a method of distinguishing between intra- and extra-cranial pain. He contends that external headache may be distinguished from "the internal pain by the fact that the internal pain spreads to the roots of the eyes [i.e., optic nerves], whilst the external one never does,"[5] and he explains this supposed peculiarity on the ground that the tunics of the eyeballs are continuous with the cerebral meninges and that this continuity facilitates the propagation of the pain. This view was taken up and propagated by Paulus Ægineta,[6] Aëtius and Avicenna,[7] and is repeated, almost in Galen's own words, by many writers of the sixteenth, seventeenth, and eighteenth centuries."[8] Fernelius was one of the first, if not the first, to confute it. "It is altogether wrong to suppose that pains of internal origin only involve the roots of the eyes," he writes concerning it, for he argues that owing to the continuity of the pericranium with the lining membrane of the orbit external as well as internal pains may spread to the roots of the eyes. Rondeletius did not regard this objection as valid, arguing that pain of the pericranium most frequently arises from cold, which cannot reach the orbit because the latter is protected "by the warmth of the eyes, by the spirits and the blood," whilst if external headache were excited by heat or a similar cause it would rather be the skin than the more deeply-placed pericranium that would suffer. Bonetus, however, rightly dissents from these remarks of Rondeletius, observing that if the external headache arose from any organic disease of the pericranium, such as tumour, "nulla ratio erit cur dolor ad oculi cavum non feratur."[9] I might quote from several other writers to show how much they exercised themselves on this question.[10] One can, I think, well understand how Galen came by his view. The eyes

[1] Labarraque: Essai de la Céphalalgie, p. 28.
[2] J. Boneti Sepulchretum, tome i., p. 35 (1700).
[3] Lib. X., Τόπων.
[4] Lib. de Tumor., v., cap. 3, de Loc. Aff.
[5] Kuhne's edition, vol. xii., p. 563.
[6] Commentaries, vol. i., p. 355.
[7] Archirathologia, p. 73. Lutetiæ, P. E. Montalto (1614).
[8] Joannes F. Stuckens: De Dolore Capitis (Brux., 1787).
[9] J. Boneti Sepulchretum, tome i., pp. 19 and 20 (Lond., 1700).
[10] See also Archipathologia &c., p. 73 (P. E. Montalto, 1614), and De Urinis et Pulsibus, p. 576 (Leipzig, 1698).

often ache in headache, and bearing in mind the close relation between the sclerotic and the dura mater he not unnaturally concluded that pain in the one would readily involve the other. As a matter of fact the eyes are apt to be involved in pain in all cases of frontal headache, and although it is impossible to exclude the meninges there can be little doubt that the pain is generally located chiefly in the more superficial structures. The forehead and the eyes each receive their sensory nerves from the superior division of the fifth nerve and it is therefore no wonder that the two are often involved in pain together; but seeing that the extra-cranial part of the frontal regions has far more numerous branches from it than the intra-cranial structures one would expect the former to be chiefly involved in the pain of frontal headache. Galen regarded tenderness of the head as another means of diagnosing external from internal headache, for he writes: "Sometimes the pain of hemicrania is so great that contact with the hand can scarcely be borne, in which case it is clear that the pericranium and overlying skin are affected."[11]

C. Aurelianus, who probably lived shortly after Galen,[12] is most explicit in regard to the structures supposed by the various authorities he had consulted to be involved in the pain of headache. "Some have said that the membrane (of the brain) suffers in headache; others, that which surrounds the skull; others, the whole skin of the head; others, the temporal and buccal muscles."[13] He himself, however, regards one or another as affected according to circumstances. The passage shows how very carefully the question had been thought over before his time. It is very remarkable that whilst he does not name the brain as a possible source of the pain he mentions that certain muscles had been so regarded. A similar view, as will be seen, has since been advanced by Willis, Whytt and other writers. I ought also to mention that Galen placed the pain in some cases of hemicrania in the temporal muscles.[14]

I pass over the Arabian writers since they do not appear to have added anything new to the views of Galen on the subject and come to the mediæval writers. Fernelius has a passage to this effect: "By membranes I mean the meninges and pericranium, which alone are capable of feeling the exquisite pain of cephalalgia, cephalæa and hemicrania."[15] The views of Willis are also expressed in the most unmistakable terms. The parts affected by the pain are, he declares, "the two meninges and their various processes" [this appears to me an important qualification], "the coats of the nerves, the pericranium (or skin compassing the skull) and other thin skinny membranes, the fleshy panicle of the muscle, and, lastly, the skin itself," whilst the brain, medulla and skull, he thought, lacked "sensible fibres, apt to be wrinkled and distended."[16] He regarded the pain of headache as internal or external, the former as rarer and less severe than the latter "because the parts above the skull are not so sensible as the interior meninges; nor are they watered with so plentiful a flood of blood, that by its sudden and vehement incursion they may be easily distended or inflamed above measure." The internal headache "is more frequent and much more 'cruel'[17] because the membranes clothing the brain are very sensible, and the blood is poured upon them by a manifold passage and by many and greater arteries."[18] The "circle of Willis" is, it will be recollected, named after this physician, who must very frequently have dissected the cerebral bloodvessels, and we can well understand how he came to be impressed by the abundance of the arteries and other "passages" (sinuses?) between the brain and the skull. Bartholinus recalls a case of hemicrania which he attributed to acid lymph mixed with bile attacking the frontal muscle. He also refers to other muscles of the head being the possible seat of pain in headache.[19] Montalto says "the pain of hemicrania sometimes involves the cerebral membranes and at other times the membranes surrounding the skull, the pain in the latter case frequently involving the temporal muscles."[20] Sydenham has no special article on headache, but makes some interesting remarks on the subject of "Clavus," the pain of which he localises in the pericranium; he quaintly supposes that the "spirits" of the body at large are concentrated upon a limited part of this latter, much as the sun's rays may be focussed by a lens, and he compares the pain of the one to the scorching action of the other.[21] The early pathologists were not content merely to differentiate between internal and external headache; they even sought to discover the particular structure involved in the pain, in which attempt they were guided by definite rules, handed down for the most part from Galen. I quote the following from amongst many similar passages in Wepfer. After minutely describing the symptoms of a case of headache he argues that the affected part does not appear to be the pericranium, "because the pain is not increased by external contact, but the dura mater, because it becomes more severe after coughing, screaming &c., and because it is diminished by mental exercise. It is not the pia mater, because there is no vertigo or sleepiness, for the patient does not sleep beyond six or seven hours, and then quietly; nor is the pain superficially situated or in the interior of the brain, because the sharper pain is felt chiefly in the forehead."[22] Physicians of this and of the next century were even more minute in diagnosing the nature of the pathological process—to what extent it depended upon this, that or the other humour; and, as usual, they were largely influenced by the writings of Galen, whose highly speculative mind had loved to dwell in the airy regions of hypothesis.[23]

Coming now to the eighteenth century, one finds Van Swieten, in his "Commentaries of Boerhaave," adopting the opinion of Louis Duret, a French writer of the same period, to the effect that "cephalalgiam calvariæ ejusque integumentis proprium esse malum."[24] He regarded the brain as being quite devoid of sensation. Hoffmann expresses his views on the subject in the following passage: "The seat of pain in the head is most frequently the pericranium or the membrane which immediately covers the skull; sometimes the cutis itself, particularly its interior surface contiguous to the pericranium; sometimes also the dura mater, which communicates with the pericranium through the sutures; and sometimes the ..... pituitary tunic—i.e., the mucous membrane lining the frontal and other accessory nasal chambers. The other membranes immediately investing the brain, as the pia mater and arachnoids, seem little adapted to be the seat of the pain, as no elastic fibres or nervous branches are distinguished in them."[25] Hoffman regarded the brain as incapable of feeling pain because the cortical substance may be severely injured without pain being felt; but Colin points out, in reference to this fact, that many organs which in the healthy state are apparently devoid of sensibility may become painful when diseased;[26] and a similar remark has been made by a number of other writers. Not only did the older authorities ascribe to the dura mater great sensibility but the power of "oscillation" also. It was reserved for Whytt, whose writings on the nervous system will still repay perusal, to confute both these views. He declared that the membranes of the brain are altogether destitute of motion and that in the healthy state they are endowed with only a very obtuse kind of feeling, and he refers to Haller's experiments in favour of this view;[27] but in another passage he speaks of the cerebral membranes and pericranium being the seat of violent pain.[28] J. Fordyce alludes to the subject in a passage which does not lend itself readily to translation, but in which he apparently suggests that the pain of hemicrania may be situated in the falx cerebri and in the temporal

[11] See also Johannis Fernelii, Ambiani, Universa Medica, p. 59. Trag. ad Rhen., 1656; and Rhondeletius, referred to in the Sepulchretum, op. cit., p. 35.

[12] The date is uncertain, but as no mention is made of him in the writings of Galen it is probable that Galen lived first. The fact that Aurelianus wrote in Latin perhaps favours the same view.

[13] De Capitis Passione.

[14] Kuhne's edition, vol. xii., p. 591.

[15] De Morbis Universalibus, p. 91 (1645).

[16] Willis, one of the fathers of nerve physiology, believed, it must be remembered, that pain depended upon a "convulsion or corrugation of the nerves."

[17] "This term still survives amongst the poorer classes in the sense here used; I frequently hear it. The older French writers also speak of 'la douleur cruelle' See, for instance, Journal de Médecine et Chirurgie, Paris, July, 1781, pp. 241, 242."

[18] The above quotations from Willis are from the English translation of his work by "S. P.," London, 1684, Of the Soul of Brutes, p. 106

[19] J. Bartholini Acta II., vol. iii. and iv. Hafniæ, 1677.

[20] Montalto, op. cit., p. 157.

[21] Opera Omnia, p. 373, by G. A. Greenhall. London, 1844.

[22] B. et G. M. Wepfer, Observationes de Affectibus Capitis, p. 76. Scaph., 1727.

[23] See, for instance, Kuhne's edition of Galen, vol. xii., p. 499 et seq.

[24] Quoted by H. E. Colin in De la Céphalalgie, pp. 5, 6. Paris, 1847.

[25] F. Hoffmann: A System of the Practice of Medicine, vol. i., pp. 459-477. An Abridged English Translation by W. Lewis, London, 1783.

[26] Colin, loc. cit.

[27] Observations on the Nature &c. of those Disorders &c. called Nervous, Hypochondriac or Hysteric, p. 41. By Robert Whytt, M.D., F.R.S. Edin., 1765.

[28] Ibid., p. 15. See also Works of R. Whytt, p. 621; Edinburgh, 1768.

muscles.[29] Heberden apparently ignored what others have said on the subject, merely writing that headaches "appear to be seated in the brain itself."[30] Many eighteenth-century writers—e.g., Stückens, Sauvages, Devilliers, Deschamps (fils)—place the seat of pain in the membrane lining the frontal sinuses in cases of headache involving the lower frontal region and root of the nose.[31] Thus Stückens asserts that the parts affected in "external headache" are the pericranium and neighbouring parts and the pituitary membrane lining the frontal and sphenoidal sinuses; he then goes on to say that in the latter case the pain affects the lower frontal and the supra-orbital regions, whence it may extend to the nose.[32] Sauvages, who wrote somewhat laboriously on the subject of headaches, thought that the pain might be located in the brain, for he regarded congestion of the cerebral convolutions as a potent cause of headache.[33] The last writer I shall quote from the eighteenth century is Gilbert Blane, who wrote: "Ordinary headache.....seems to be seated in the integuments of the head. The seat of that kind called hemicrania is certainly in these parts, for there is great tenderness on external pressure; and as there is sometimes an obscure redness of the skin and a suffusion of the eye it would appear that the proximate cause is a too great fulness or *error loci* in the circulating vessels."[34]

This rapid survey brings me down to the present age, in which one finds the views regarding the seat of headache remaining substantially the same as those held during the previous centuries. The tendency to locate the pain within the brain is as small as ever, though some few writers yield to it. Thus Romberg termed megrim "neuralgia cerebralis," and Leubuscher held the same view.[35] Bennet contended that all headaches except "the organic and neuralgic" depend upon a greater or less degree of congestion of the vessels of the brain, being thus apparently influenced by Sauvages,[36] from which it appears that he too located the pain in the brain, though we are not thereby justified in concluding that he regarded the vessels as aching. Here a circumstance may be mentioned which to some may seem to support the view that the cerebral vessels may feel pain. Gowers[37] has established the interesting clinical fact that hemiplegia due to syphilitic disease of the arteries (thrombosis) is very frequently (in one half of his cases) preceded, for a period varying from a few days to a few months, by headache, and such a case has recently come under my own observation. He cautiously remarks that the pain in these instances is "apparently in some way due to the arterial disease itself"; but he does not commit himself to the conclusion that it is actually located in the arteries.[38] Wilks, whilst pointing out that the pain of headache often seems to proceed from the very depths of the brain itself, expressly states that he does not believe that such is actually the case;[39] but to the list of those who do must be added the names of Seller and Symonds, since each (apparently independently) has adopted the same explanation. Seller regarded the pain in those cases where there is no manifest disease of the meninges, skull and scalp as due to involvement of the nerves accompanying the cerebral bloodvessels;[40] and Symonds, in answer to the question, "In what tissues are the aching nerves distributed?" alludes to the difficulty experienced, especially by children, in mentally localising the pain, observing that there may be a dim idea that the pain is internal, whilst external tenderness leads to the conclusion that it is external. He then goes on to remark that most of the nerves which enter the cranium are derived from the sympathetic and expresses his belief that they are sensory as well as motor, instancing in support of this view the fact that the visceral sensations are felt through the sympathetic.[41] Handfield-Jones is of opinion that in certain varieties of headache, at least, the brain itself is chiefly, if not exclusively, affected, "because its faculties are often notably impaired."[42] These views are, however, exceptional, and the majority of writers at the present day place the pain of headache not in the brain itself but in the extra-cranial tissues. W. King writes: "For years I have expressed distrust of all the supposed seats of headache within the dura mater,"[43] and he argues that, as with all other viscera, so with the brain, pain does not occur until the enveloping membrane is involved; he also points out that most severe headache may occur without any cerebral affection, whilst cerebral softening and hæmorrhage may be unaccompanied by the slightest headache. It has been seen that some early writers (including Galen, C. Aurelianus and in later days Willis, Montalto, Whytt and Fordyce) were careful to include certain extra-cranial muscles amongst the structures involved in the pain of headache. Briquet in recent times has again urged this view, apparently without any knowledge that it had been held long ago. From a number of observations on headache in "hysteric" patients he concludes that the seat of pain in nine-tenths of them was in the fleshy portions of the muscle. No writer has so ably defended this position as Léon Colin, who regards the pain of headache as almost entirely extra-cranial. He argues that the aponeurosis of the occipito-frontalis is peculiarly liable to painful affections owing to its structure, to its position and to the constant changes in temperature to which it is subjected. "The fashion of having the head alternately covered and uncovered, of having the hair cut at long intervals, the baldness often premature, explain the frequency in these regions of rheumatic pains, gouty pains and pains from lead poisoning, which occur pre-eminently in white fibrous tissue,"[44] and he asserts that the anatomical characters of this aponeurosis, notably its inextensibility, render its nerves very liable to be compressed by the hyperæmia which he supposes to result from exposure and other causes. Amongst the latter he gives diminution of atmospheric pressure, which he asserts to be a common cause of headaches and also of fevers. That the majority of intense febrile headaches have an extra-cranial origin is, he contends, proved by the fact that in most of them compression of the temporal arteries diminishes the pain, a point proved by Guyon in different fevers, notably yellow fever. Colin's article is, however, chiefly remarkable for the importance which it shows he attaches to the cranial muscles as being a seat and source of the pain in headache. Like Briquet, he seems to be unaware that others had previously held similar views. "Of all the muscles of the economy," he writes, "those which are inserted into the head are precisely those whose action is most frequent and most continuous, the only ones which during sedentary occupation do not rest. They play a considerable part in causing headache." Thus not only are they liable to the pain of fatigue, but they are apt to set up headache from their close connexion with the aponeurosis of the occipito-frontalis. More recently Norström has expressed the opinion that certain cases of headache are due to inflammatory thickening at the insertions of particular muscles in consequence of contracting cold, no pain being usually felt at the indurated spots.[45]

Perhaps no variety of headache affords better opportunities for determining the seat of the pain than megrim. There is now a general consensus of opinion that in this headache it is wholly extra-cerebral and chiefly extra-cranial. Pinel regarded megrim as a facial neuralgia and Chaussier localised it in the supra-orbital nerves.[46] Laycock considered it as "rather a neuralgia of the cranium or dura mater or the scalp than of the encephalon."[47] Anstie[48] is not disposed to believe that pain is felt in the structure of the brain; he regards megrim as a neuralgia of the fifth nerve, but does not look upon the meninges as exempt from the suffering of headache as the pain is in some cases deep-seated. Some have thought

[29] Dissertatio de Hemicrania; London, 1758. The writer here refers the reader to Spiegel's Anatomy, lib. x., c. 3.
[30] W. Heberden: Commentaries, third edition, p. 92. London, 1806.
[31] Labarraque: De la Céphalalgie, p. 28.
[32] De Dolore Capitis. Brussels, 1787.
[33] See an Essay on Headache, by Dr. Vaughan, p. 10; London, 1828.
[34] Transactions of the Society for the Imparting of Medical and Chirurgical Knowledge, vol. ii., p. 209, by Gilbert Blane. London, 1800.
[35] Ziemssen's Encyclopædia, vol. xiv., p. 1.
[36] Library of Medicine, vol. vii., p. 155. Quoted by Symonds in the Gulstonian Lectures of 1858.
[37] THE LANCET, Feb. 2nd, 1889.
[38] Heubner thinks that the headache which precedes the distinct appearance of cerebral syphilis is due to extra-cranial causes (Ziemssen's Encyclopædia, vol. xii., p. 318).
[39] Handfield-Jones: On Functional Diseases of the Nervous System, 2nd edition, p. 552.
[40] Monthly Journal of Medical Science, September, 1848, p. 137. Seller alludes to a view which regarded the encephalon as devoid of sensation during health, but capable of becoming sensitive under certain morbid conditions, the sensibilit being independent of nerves and altogether *sui generis*.
[41] Gulstonian Lectures, No. I., Medical Times and Gazette, vol. i. 1858, p. 285. Sir W. Gull, in criticising Romberg's view that hemicrania is cerebral neuralgia, says he regards it as originating in the sympathetic nerves, but it is not quite clear whether he locates the pain within these nerves (British and Foreign Medical and Chirurgical Review, July, 1854, p. 103).
[42] Functional Disorders of the Nervous System, p. 420.
[43] London Medical Gazette, Dec. 27th, 1844.
[44] Dictionnaire Encyclopédique des Sciences Medicales, Article Céphalalgie. Paris, 1873.
[45] THE LANCET, vol. ii. 1890, p. 683.
[46] Labarraque, op. cit., p. 37.
[47] Medical Times and Gazette vol. i. 1865, p. 488.
[48] Neuralgia and its Counterfeits, p. 85

that the pain of megrim is felt in the extra-cerebral arteries—that it is an arterial colic. Such is the view of Nothnagel and Lauder Brunton. Nothnagel refers to Traube's discovery of sensory nerves in arteries and he assumes that when, as in Du Bois Reymond's case, the pain is attended by arterial constriction of the affected side it is due to contraction of the arterial wall and consequent pressure on the sensory nerves, in the same way as in intestinal colic,[49] adding: "We must look for the pain not in the brain, or dura mater, or the bony skull, but in the sensory nerves of the meninges." Romberg does not attempt to explain the origin of the pain in those cases of megrim in which there is dilatation instead of contraction of the vessels on the affected side, whilst Brunton is inclined to dispute the assumption that simple dilatation or simple constriction ever occurs. He believes that affected arteries are tightly contracted peripherally, but are dilated on the proximal side of the constriction, the result being that the blood is driven with great impact against the constricted part, thus causing the pain.[50] In connexion with these views a passage from Whytt is worth quoting. After pointing out that sympathy with the stomach is one of the commonest causes of headache, he states his belief that by this sympathy "the nerves chiefly of the forepart of the head suffer; and the small vessels to which they are distributed (vaso-motor nerves?) are either affected with a continuous spasm or agitated with uncommon alternate contractions and relaxations; in consequence of which the patient feels a pain, straightness, fulness and pulsation about the forehead and temples."[51] And again he says that headache may be caused by "a viscid or acrid humour obstructing or irritating the vessels of the pericranium, cranial muscles or dura mater, as in gout or scurvy." If for "viscid or acrid humour" one substitutes "uric acid," a remarkable likeness is seen between Whytt's view and that more recent one of Haig which attributes to this substance great powers of contracting the blood vessels.

Devonshire-street, W.

THE TREATMENT OF PERICARDITIS.

BY D. B. LEES, M.A., M.D. CANTAB., F.R.C.P. LOND.,
PHYSICIAN TO ST. MARY'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN; EXAMINER IN MEDICINE, CONJOINT BOARD FOR ENGLAND.

THE majority of cases of pericarditis are due to rheumatism. It is a frequent manifestation of this disease, especially in children, and the possibility of its occurrence ought to be constantly kept in mind. Not seldom the associated affection of the joints is exceedingly slight and thus there is good reason for thinking that many of the cases of pericarditis which have been described as "idiopathic," coming on after exposure to cold and wet without any arthritis at all, are really of rheumatic nature. And the cases associated with chorea must be classed under the same heading, for chorea is certainly in most instances a manifestation of rheumatism. Now if we group together all the cases of pericarditis due to these three conditions—obvious rheumatism, latent rheumatism and chorea—we shall find that a large number of cases are accounted for. In rheumatic pericarditis it is common to find also a dry pleurisy, especially on the left side, and occasionally some pneumonia, and this leads to the consideration of a second but much smaller group of cases of pericarditis in which, without any evidence of rheumatism, there is inflammation of the pericardium along with a similar condition of one or both pleuræ, or of one or both lungs. In such cases the pericarditis is sometimes said to have arisen by "extension"; but I very much doubt whether this is the correct explanation, except in rare cases of empyema. It is unlikely that a simple inflammation spreads from the one serous membrane to the other; in most cases of pleurisy the seat of greatest inflammation is far away from the heart and its covering, and a pericardial rub seems to be heard quite as frequently when pneumonia is on the right side as when it is on the left. In addition to this the simultaneousness of the outbreak of the pericarditis and the pleurisy often indicates clearly enough that they are independent results of the same cause. I wish to draw attention specially to cases in which the pericardium and both pleuræ are simultaneously attacked, sometimes along with pneumonia, at other times without any implication of the lung. Such cases are apt to be very rapidly fatal, indeed they are often admitted into hospital in a moribund condition. I have not seen the peritoneum affected with the other serous membranes in this group.[1] Granular kidney is sometimes asserted to be a common cause of acute pericarditis, but the coincidence of these two pathological states is rare. Very few of the patients with pericarditis have granular kidneys, and few patients with granular kidney are found post mortem to have suffered from pericarditis. In 406 necropsies of chronic Bright's disease collected by Sir William Roberts pericarditis was found not more than thirty times, or in only 7 per cent. Probably in many even of these it was not discoverable during life. Tuberculosis is another occasional cause of pericarditis; in my experience it is not nearly so common as has recently been stated by Dr. Osler. Malignant growths involving the pericardium are a rare cause of pericarditis.

Of 28 cases of pericarditis under my care during the last six years 16 were rheumatic in origin. In 8 others the pericarditis accompanied pneumonia, pleurisy or empyema, without distinct evidence of rheumatism, though the illness had often followed an exposure to cold and wet. In 5 of these 8 cases pneumonia was present, in 6 pleurisy and in 3 empyema. The pleurisy was often on both sides or there was empyema on one side and simple pleurisy on the other. Only one case was due to chronic Bright's disease, one to tuberculosis, one to sarcoma of the left lung which had invaded the pericardium and one apparently to the presence of an aneurysm of the root of the aorta. Thus of a total of 28 cases, 16 were due to rheumatism, 8 accompanied pneumonia or pleurisy, 1 was due to granular kidney, 1 to tubercle, 1 to sarcoma of pericardium and 1 to aneurysm of aorta. Hence 16 cases out of 28 were due to rheumatism, which gives a proportion of 57 per cent. If adherent pericardium were included and the origin considered of all cases of pericarditis and its consequences during life which come under clinical observation, the rheumatic percentage would be much increased, for, as a rule, pericarditis from other causes is fatal.

I need not discuss the ordinary symptoms and physical signs of pericarditis, but there are one or two special points to which I wish to draw attention. The first is this—that a double pericardial rub may at first be so soft in character as to simulate the blowing murmurs of valvular disease, and as it may be audible only over the base of the heart it may imitate almost exactly a double aortic murmur. Thus pericarditis may be mistaken for commencing disease of the aortic valves. This mistake is a very serious one, for of the two lesions pericarditis is much the more serious, both for its immediate and its later results, and it is also the lesion which is the more open to treatment Especially in children should the possibility of this mistake be kept in mind, and it should be remembered that whilst mitral disease is very common in children aortic regurgitation is rare, so that a fresh double murmur at the base of the heart occurring during an attack of rheumatism in a child is much more likely to be due to commencing pericarditis. It is hardly necessary, perhaps, to refer to the triple rhythm without definite rub, which may sometimes be the first sign of the onset of pericarditis, but I should like to draw special attention to the fact that pericarditis may sometimes exist and run its course, apparently from the very beginning to the end, without any rub at all. I have seen two or three instances of this. They have all been cases belonging to the second of the above groups, in which the pericarditis has accompanied pleurisy or pneumonia. In such instances the pleural condition is usually diagnosed, whilst the similar condition of the pericardium

[49] Medical Press and Circular, vol. i. 1880, p. 29.
[50] Disorders of Digestion, p. 103.
[51] Observations &c., pp. 305, 306.

[1] Since this paper was written a case has been under my care at St. Mary's Hospital in which the peritoneum was implicated, along with the pericardium, both pleuræ, and one lung. The patient was a woman aged fifty-three whose illness had commenced a few days before with shivering and vomiting, followed by diarrhœa. On admission she showed remains of herpes on her right cheek and on the nostrils. There was some dulness at both posterior bases, especially the left, marked pleural rub on both sides, loss of breath sounds at the left base and no bronchial breathing anywhere. The heart's dulness extended to the left nipple line but not beyond the mid-sternum, and no pericardial rub could be heard, though it was repeatedly sought for. The abdomen was tumid, resonant, nearly motionless, and a little tender. The temperature was only 100° to 101°, but the pulse was very rapid (130) and feeble. The necropsy revealed large patches of thick, yellow lymph on each pleura, some consolidation of the base of the right lung, some fluid in the left pleural cavity, a coating of lymph over nearly the whole surface of the heart, and purulent peritonitis, the intestines being matted together with recent adhesions. Her kidneys were not granular.

escapes observation. Perhaps even in such cases, if the possibility of pericarditis without rub were kept in mind, the diagnosis might be made correctly by a very careful delimitation of the cardiac dulness. Without this it is very easy to make a mistake, and I have even known pericarditis to be altogether mistaken for a left-sided pleurisy which did not exist at all.

Some may be inclined to question my assertion of the gravity of an attack of pericarditis. It is well known that most cases of rheumatic pericarditis recover, that sometimes nothing abnormal can be detected by physical examination of a heart which has at some previous time suffered from pericarditis, and that from time to time hearts with universally adherent pericardium are met with in the post-mortem room which seem to have acted satisfactorily in spite of the adhesion. But the more I see of the results of pericarditis in children and young adults, the more I am impressed with its seriousness. If a case of pericarditis which has "recovered" be carefully examined, it will only too often be found that the recovery is far from perfect. The pulse remains rapid, usually about 120, there is dyspnœa on slight exertion, and when the cardiac dulness is determined by careful percussion it is found to be much larger than normal. The heart is and remains dilated. Some hypertrophy may follow, sometimes a considerable amount, but it is hardly ever enough to compensate for the dilatation, and the patient remains a cardiac cripple, unable to take his share in the ordinary activities of life. At the best he is a chronic invalid, and too often the symptoms of cardiac failure before long become obtrusive and the end is in sight. Even with the greatest care a severe attack of pericarditis in a child or young adult usually means the loss of many years of the patient's life. I do not think that these facts are sufficiently recognised, the medical man's feeling with regard to such cases being too accurately represented by the two familiar explanations of the fracture of a tea-cup: "it's only cracked," and "it was cracked before."

The dilatation of the heart produced by pericarditis may often be detected by careful percussion at a very early stage of the illness. Especially should the limit of the dulness to the right be carefully determined, and it will often be made out even in the first few days that it extends already from one to two fingers' breadth to the right of the right margin of the sternum, indicating a rapid dilatation of the right side of the heart; and this dilatation is also indicated by a very definite symptom —namely, the dyspnœa—which is so early and characteristic a symptom in pericarditis, sometimes amounting to orthopnœa. How is this dyspnœa produced? Not, I think, by hypervenosity of the blood reaching the respiratory centre, for there is little or no cyanosis at this early stage. I believe it to be due to a physiological reflex by which distension of the right ventricle causes stimulation of the respiratory centre, thus bringing about its own relief in the same way as overdistension of the left ventricle by stimulating the "depressor" fibres acts on the vaso-motor centre, opens up the vascular channels of the abdominal viscera and so effects its own relief. I look upon the dyspnœa of pericarditis, then, as an indication of failure of the right ventricle and as a confirmation of the conclusion drawn from percussion. At the same time there are indications of failure of the left side of the heart also, for the cardiac impulse becomes weak and the pulse is feeble, short, and sometimes irregular. There is clearly a partial paralysis of both sides of the heart. And it is no wonder that pericarditis should produce this result, for the pericardium is continuous in structure with the heart itself, and an inflammation of the visceral layer of the pericardium is really a superficial carditis and an inflamed organ is necessarily weakened. The thin-walled right ventricle is more rapidly affected than the stronger left ventricle, hence the dyspnœa is the more prominent symptom, but in a case of any severity the evidence of the paresis of the left side is clear enough. Both sides of the heart rapidly become dilated and too often they never recover themselves; the superficial muscular fibres become damaged by the inflammation and permeated by fibrous tissue of inflammatory origin, and the adhesions which remain fix the cardiac walls in their abnormal position. I may add that this dilatation of the heart caused by pericarditis goes a long way to explain a fact which has been noticed by writers that a pericardial rub often persists throughout the case, even after a considerable quantity of fluid has been poured out.

If these statements are true the proper treatment of pericarditis must be a matter of vital importance to the patient. It is clearly a condition which calls for prompt and energetic treatment, if only it can be satisfactorily determined of what nature that treatment should be. Fifty years ago there was neither doubt nor hesitation in this matter, and the treatment adopted was certainly not lacking in vigour. In his "Lectures on Diseases of the Heart," published in 1845, Dr. Latham describes his treatment of eighteen cases of pericarditis. He says: "Not a moment was lost in the application of remedies. They were venesection, and cupping, and leeches, and blisters, and opium, and, from first to last, mercury." And he especially insists that it is necessary to push mercury to salivation. How many of these formidable measures are in use to-day? Venesection, cupping and mercury have been absolutely banished from the treatment of pericarditis. Three or four leeches, or a single small blister, now represent the maximum therapeutic attack on the disease from without, whilst a little morphia alone remains as a representative of the active medication of former days. That is to say, we have given up the idea of curing pericarditis and limit our efforts to keeping the patient at perfect rest, nursing him assiduously and trying to ease his pain by morphine and by the soothing influence of warmth to the præcordium. We have indeed discovered that salicylates are curative of the rheumatic process on which the pericarditis usually depends, but it is taught by some physicians that this drug must be given up on the occurrence of pericarditis lest it should cause cardiac depression. Thus it may be said that the treatment of this formidable complication of rheumatism is rather less than nothing, for the patient is actually deprived of the sole remedy which seems to have a specific influence over his rheumatism. Have we, then, no means of combating pericarditis as a local inflammation? I maintain that we have It is the local persistent application of cold. This should be first tested by watching the therapeutic effect of persistent cold on a local inflammation in another part of the body, on the neuritis of the sciatic nerve, otherwise called sciatica. If in a case of this disease which is of not more than two or three weeks' duration two icebags are placed over the course of the inflamed nerve and are kept applied for two or three days, there is usually rapid and marked improvement, the pain and tenderness quickly diminishing. Encouraged by the result of this experiment, the effect of the application of an icebag over the tender region in the right groin in a mild case of perityphlitis should be tried next. I exclude the severe cases due to perforation of the appendix vermiformis by a concretion, for these are unsuitable for palliative treatment; they are only too apt to kill rapidly by general peritonitis and require early operation. I have had six cases of this kind; five of them were saved by prompt interference, my first was not operated on and died in a few days. But if in a case of perityphlitis in which there is a tense tender swelling in the appendix region, but in which the diaphragm still descends in deep inspiration and where there is no evidence of general peritonitis, an icebag is applied over the swollen appendix the greatness of the relief which results within twenty-four hours is surprising. I have seen this now many times. A recent observation in this direction impressed me greatly. It was the case of a young man in whom severe symptoms of perityphlitis had already been present for ten days when I first saw him. There was marked distension of the abdomen, which was extremely tender over nearly its whole extent; the diaphragm was passive and the expression of the face was such that I thought he had not many hours to live. It was necessary, however, to postpone operation for a short time, to obtain the consent of his relatives, and meanwhile I had an icebag applied to the right iliac fossa. When I visited him again seven hours later with my colleague Mr. Silcock, with a view to immediate operation, I was astonished at the improvement which had taken place. He had lost all pain, the abdomen was much less tender and the expression of his face was altogether different. The effect was so striking that for a short time I hesitated to sanction an immediate operation; but, as Mr. Silcock and I agreed that it was practically certain that there was pus in the peritoneum, we decided to operate at once and an incision let out a considerable quantity of pus from the peritoneal cavity. Very great relief followed, and the subsequent progress has been satisfactory. Here was a case of perityphlitis of the worst kind, in imminent danger of death, and yet the local application of ice was able to produce the most marked alleviation of the symptoms.

These two illustrations are enough to demonstrate the possibility of actively repressing visceral inflammations by the local use of ice. I say nothing of a similar result in pneu-

monia, though I am certain of the fact,[2] because here the local result is not so obvious: it requires careful daily watching of the physical signs. It is therefore probable that the application of ice will tend to check inflammation in the pericardium also; but a further question now arises. Is ice a safe application to the region of the heart? The heart inflamed with pericarditis is already much depressed; is there not a risk of depressing it still further by the use of ice, perhaps of bringing it altogether to a standstill? If the heart of a recently killed frog, which is still pulsating normally, be chilled by ice, it soon ceases to beat; if then the ice be removed and warmth be substituted, pulsation returns; this alternation can be repeated two or three times. In this experiment it is clear that the cold acts as a powerful cardiac depressant; but it does not necessarily follow that the application of ice over an inflamed pericardium will add to the cardiac depression. If it succeeds in checking the local inflammation it may even lessen the depression and actually become a tonic to the heart. Which of these two results will follow can only be determined by cautious employment of the icebag and careful observation of the result. The notes of my seven cases treated in this manner, which have already been published,[3] are, I think, sufficient evidence that the icebag, when used with reasonable caution, is a safe application in pericarditis, that it is usually liked by the patient, that it tends to check the violence of the local inflammation and to hinder effusion, and that it may even help to cause absorption of effusion which is already present. It acts "cito, tuto et jucunde." Since the publication of these cases I have continued to use the icebag in the treatment of pericarditis and with very satisfactory results. In the subacute carditis of rheumatic children, often attended with some friction sound and signs of cardiac dilatation, but with little pyrexia and few symptoms, each attack, however, leaving the heart more damaged than before, I find that ice is of doubtful benefit and is apt to depress; but the acuter cases, even in children, derive great benefit from its use.

The question of the continuance or discontinuance of salicylates during an attack of pericarditis is of great interest. Some physicians of large clinical experience have advised the omission of these drugs when pericarditis occurs, believing that they cause increased cardiac depression. Is this a fact or not? I have been constantly on the look-out for evidence of cardiac depression produced by salicylates and have never been able to satisfy myself of its occurrence. On two occasions I have noticed slight irregularity of the pulse apparently produced by salicylates, but I have never observed any marked enfeeblement apparently caused by them. It is hardly likely that the cardiac depression produced by the pericarditis itself can by skilled observers have been credited to the salicylates taken, and I am more inclined to think that the effect may have been brought about by some impurity of these drugs in days when an enormous demand for them suddenly arose and the methods of manufacture were not so perfect as at present. In a condition essentially rheumatic it seems a pity to give up the use of salicylates unless there is clear evidence of their hurtfulness. I have been in the habit of continuing their employment in my cases of pericarditis treated with ice and have been well satisfied with the result.

I may add a word or two about other measures. A little morphine subcutaneously injected is often of much service, and the application of a few leeches to the præcordium at the commencement of the pericarditis decidedly gives relief. I have only once had recourse to venesection; it was in the case of a young man with very severe pericarditis, in whom there was extreme cardiac dilatation. It was employed with a view of giving some relief to the right side of the heart and it seemed to be quite successful, the patient recovering from what was certainly a very critical condition. An icebag also was kept over his heart for several days and gave him so much comfort that when it was removed he requested that it might be reapplied. On more than one occasion during his gradual improvement he experienced pain over the cardiac region, and at his own request the ice was again employed; on each occasion it gave relief. In many other cases in which the icebag has been used, in pericarditis, in pleurisy, in pneumonia, in perityphlitis, and in sciatica, I have known patients to ask for its reapplication, a fact which may be looked upon as a clear indication of the benefit which they were conscious of having received from it.

Weymouth-street, W.

[2] THE LANCET, Nov. 2nd, 1889.
[3] Brit. Med. Journ., Feb. 18th, 1893.

FRACTURE OF THE SPINE.

BY D. LIVINGSTONE DAVIES, M.R.C.S., L.R.C.P. LOND.,
LATE ASSISTANT MEDICAL OFFICER TO THE NOTTINGHAM BOROUGH ASYLUM.

A WELL-BUILT, healthy male aged twenty-nine was admitted to the Nottingham Borough Asylum on July 15th, 1889, suffering from mania with dementia. There was a history of insanity, intemperance and phthisis in the family; the patient himself was addicted to drink. Since admission up to Jan. 21st, 1892, he had been fairly quiet and free from excitement, being childish and weak-minded. He was employed almost daily in the kitchen and amongst other things used to clean the knives. He had never shown any suicidal tendency. On the morning of Jan. 21st, 1892, whilst going into the dining-hall to breakfast, he suddenly made a rush head-foremost against the window, shattering a pane of plate-glass a quarter of an inch thick; he then withdrew his head, and before he could be prevented he thrust his head through an adjoining pane. In consequence of this he was placed under special supervision by the medical superintendent. Strange to say, the only injury he sustained was a slight scalp wound and a scratch on the wrist; he did not lose consciousness. The same night, though he was under the continuous observation of an attendant, he suddenly jumped out of bed and rushed head-foremost at the wall; he did this a second time and then fell helplessly on the floor. The attendant ran to him immediately and found him in a state of partial consciousness. In a minute or two he recovered consciousness, spoke rationally, complaining of pain in his head, and said he felt as if he was paralysed. When seen by the medical superintendent and myself he was found lying helplessly in bed, breathing heavily and evidently suffering from an injury to the spine high up. He complained of pain on movement and on pressure over the cervical spines; no deformity could be detected; he had paraplegia, both motor power and sensation being lost, and anæsthesia extending upwards to a line three inches above the nipples. The respiration was almost entirely diaphragmatic, the pulse was regular (75 per minute) and the temperature was normal. There was retention of urine. Knee-jerks were absent. In about twelve hours after the accident the temperature rose to 102·4°, the pulse being 104 and the respiration 30. On the morning of Jan. 22nd his temperature was 103·2°, at 11 A.M. it was 103·2°, and at 1 P.M. it was 104°; the pulse was 92 and the respiration 38. At 5 P.M. the temperature was 104·6°, the pulse 92 and the respiration 56. At 7 P.M. the temperature in the right axilla was 104·8° and in the left 103°; the pulse was 94 and the respiration 59. At 9 P.M. the temperature in the right axilla was 104·6° and in the left 103·2°; the pulse was 96 and the respiration 62. At 11 P.M. the temperature was 104·6°, the pulse was 96 and the respiration 88. On Jan. 23rd the temperature at 1 A.M. was 105·2°; at 3 A.M. it was 105·8°. The patient was conscious until an hour before death, when he became delirious and died at 4·25 A.M. During the early hours of the morning he vomited several times, the vomit being of a dark brown colour. Just before death his face assumed a livid colour, the eyeballs stood out prominently, his pupils were widely dilated and death took place apparently from asphyxia. The temperature ten minutes and thirty minutes after death was 106·6°; an hour and an hour and a half after death it was 106·2° and 105·8° respectively.

Post-mortem examination twenty-nine hours after death.—The scalp was very thick; there was an abrasion the size of a shilling on the vertex. The skull was very thick and dense, there being no fracture anywhere. The dura mater was much congested, being dark in colour. The arachnoid and pia mater were congested and stripped readily. The grey matter was hyperæmic, the white matter being healthy. The choroid plexuses were engorged and swollen. The basic ganglia, pons, medulla and cerebellum were normal. The other organs of the body were healthy. A T-shaped fracture of the body of the fifth cervical vertebra was found splitting the body into three parts, with a V-shaped fracture of both laminæ at a point near the junction of the posterior laminæ with the transverse processes. No displacement of the fragments was noticeable. On opening the vertebral canal the spinal meninges bulged out and on incising these a large amount of dark blood escaped, being sufficient in amount to cause some compression of the cord. (The spinal cord at the seat of fracture was not

examined, as this would have been impossible without destroying the bony specimen, which it was desired to keep intact.)

Remarks.—The following facts appear to me to be of much interest: (1) The sudden onset of suicidal tendency; (2) the very unusual manner in which the fracture was produced—viz., by running head-foremost in a room only ten feet by six; (3) the absence of any injury to the skull or brain; (4) the short period of unconsciousness, the patient being conscious until one hour before death; (5) the total absence of knee-jerks, which are usually increased; (6) the limitation of perspiration to the sensible parts of the body; and (7) the difference in temperature in both axillæ, that in the left being always a degree or more lower than that in the right. The treatment simply consisted in fixing the head between sandbags, in giving fluid nourishment and in drawing off the urine when necessary. The necropsy evidently showed that no good would have resulted from trephining, the performance of which had been under consideration. I have to thank Mr. Powell for allowing me to report the case.

Criccieth, North Wales.

THE TREATMENT OF FEEBLE-MINDED CHILDREN.

BY FLETCHER BEACH, M.B., F.R.C.P. LOND.,
LATE MEDICAL SUPERINTENDENT, DARENTH ASYLUM FOR IMBECILE CHILDREN.

IN considering the treatment of feeble-minded children it is necessary to remember that, as their physical organism is usually defective, we have first to strengthen the body and alleviate its defects, and secondly to undertake the moral and intellectual training required. Before proceeding to describe the training it will be convenient to mention shortly some of the deficiencies which are met with in these cases. Common sensation is usually less acute than in ordinary persons and patients of this class do not suffer pain to the same extent as sane children. The senses of smell and taste are more or less defective and the sense of touch is also imperfect. There is a deficiency in the power of following moving objects with the eyes, which sometimes wander about not from blindness, but from non-perception, owing to the condition of the brain. Inability to perceive colour and to calculate size and distance exists from the same cause; colour blindness, however, is found by experiment to be not more frequent than in the general community. The ears are often large and implanted far back, and the sense of hearing is imperfect, not from disease of the internal ear, but from the waves of sound being unable to excite sufficiently the nerves connected with the auditory apparatus. Dumbness, on the one hand, or a crying or screaming propensity on the other, is often noticed, and in those who can speak, mumbling of words and irregular ejaculation of sentences are sometimes present. Irregularity of teeth and a highly arched palate often exist and add to the vocal difficulty, as do the open mouth and inert lips. The proper amount of coördination between the muscular efforts of the lips, tongue, throat and chest is more or less deficient, and hence the principal cause of the defective voice. The appetite is in many cases voracious, the digestion slow, the stools fetid and there may be inability to retain the contents of the bladder and the bowels. The power of coördination is sometimes deficient in the muscles of the trunk and limbs, hence a waddling gait is occasionally noticed, and the hands have difficulty in performing simple acts. There may be inertness of the body, or on the other hand great restlessness, and the muscles of a limb may be paralysed or given to uncontrollable action. The skull is often much below the normal size and there is occasionally want of symmetry of the face. The defects of the mind are manifest in every degree from a merely infantile condition up to intelligence just below that of ordinary children. Abstract ideas and intellectual perception are dull or wanting, and the notions of foresight, prudence and self-preservation are deficient or feebly developed. The memory is usually weak and the power of attention defective or often absent, as are the faculties requiring exercise of the will. Ability to compare and to estimate by numbers is seen in the higher classes. The gift of imitation is strongly developed, but the firmness of purpose required in the struggle for existence is not present, and the judgment cannot be depended upon. Ideas of right and wrong and the duties to one's neighbour are absent in untrained cases. Obedience is difficult from deficiency of the will or want of attention. Emotions are passive or easily excited, so that anger and obstinacy are the results of want of training. The affections are usually well developed and are often the groundwork on which the training depends. The diseases to which this class of patients are liable are of an asthenic type. Phthisis is frequent amongst them and runs a rapid course in a few weeks, often unaccompanied by cough or expectoration. Scrofulous diseases, epilepsy, bronchial affections and diarrhœa are exceedingly common, and disease of the brain and its membranes occasionally occur. The general tendency is to physical degeneration. From what has been related it will be gathered that the ordinary training and education of sane children are not possible in these cases. It is necessary to secure for them a healthy site on gravelly soil, a good water-supply and well-ventilated rooms capable of being warmed in winter. Frequent baths, a plain but liberal diet, warm clothing, and plenty of exercise are also most essential. Medical treatment will of course be required to counteract the scrofulous condition and phthisical tendency and to lessen the number of fits in cases suffering from epilepsy. The diarrhœa with which so many patients are affected in the summer is to be controlled by appropriate remedies, and the skin eruptions so commonly met with are to be attended to in the usual way. As the circulation in most of the cases is weak, and the vital power low, the treatment must be of a stimulating nature.

Having placed the patient in as good a hygienic position as possible, the different portions of his training are commenced, and first, as well as the foundation of all, the physical part. The muscles which are wasted must be nourished by calling their functions into activity, and for this purpose properly applied exercises, in which the faculties of imitation and attention should be made use of, are required. These exercises will also correct the want of coördinating power so often seen, as shown by the entire absence of the ordinary precision of muscular movements. Simple movements of the head and limbs to music will be found useful for this purpose, as will the practice of throwing a bag of beans at the pupil, who first puts up his hands to protect himself from it and afterwards learns to catch it and throw it back. The power of coördination is also strengthened by the use of nail boards, in which the nails are taken out and put back again; by the use of forms, such as squares, circles, triangles and oblongs made of wood, and fitted into corresponding depressions, threading beads, paper plaiting, and many similar exercises. The legs are trained by musical drill, by walking upon or between the steps of a ladder placed upon the ground, and by the use of apparatus to be found in every gymnasium. If there are contractures or paralysis due to disease of the brain the general and special nutrition of the affected limbs must be increased by the application of electricity and massage. Automatic movements due to the want of the controlling power of the will must be replaced by others upon certain definite plans. Habits are taught by repetition and are readily gained if an early commencement be made. The muscular system being strengthened, the hands have less difficulty in performing any simple act, locomotion is improved and the eyes wander less restlessly—in fact, the dull will power being strengthened the listlessness and inertness to a great extent disappear. On the other hand, the restlessness of the excitable class must be soothed by appropriate measures.

The moral treatment should go on side by side with the physical and the mental treatment. Obedience must be taught and efforts made to impart good temper and affection. The child has to learn these good qualities through the agency of the teacher, who should use all the means in her power to cultivate the faculty of attention in the patients. These children have affectionate dispositions as a rule, and by taking advantage of this great good results. There may be some difficulty in obtaining confidence and obedience at first, but the regularity of the institution, the obedience of others, and the general routine act upon the feeble-minded child to so great an extent that parents are often surprised to see an improvement in a short time. It is chiefly in the epileptic patients that outbursts of temper take place, but strict attention to their diet, with treatment suitable to the case and separation from the others for a time, will usually suffice to calm the child. The intellectual training commences by the cultivation of the senses, and as the tactile function is the most important we commence by educating the sense of touch.

The exercises before mentioned will conduce to this, as will the handling of rough and smooth substances, building with bricks and the use of materials which are wanted in the daily habits of life. The sense of sight is educated to perceive colour by the aid of papers of various tints which the child should match, coloured cups and balls which he should pair, afterwards applying this familiarity to things in daily use; in form, by the use of the squares, triangles &c. before mentioned; in the notion of distance, by making him separate objects from each other and then take measurements from point to point in a room or out of doors. The sense of hearing is trained by teaching the child to discriminate between the various sounds presented to his ear, or by the aid of music, of which all feeble-minded children are fond, whilst a "speaking drill," making use of the gift of imitation, will improve the faculty of speech. The senses of taste and smell are awakened by a series of experiments with disagreeable or agreeable, odorous or odourless substances and the qualities of objects thus ascertained. When the child is familiar with a certain number of them his eyes should be shut and they should be presented successively to his tongue or nostrils, which must discriminate between them without the help of touch, sight or hearing. In every case it is necessary to proceed from the simple to the complex, teaching ideas by the use of concrete forms and not by abstract notions, taking care not to prolong the lessons so as to tire the pupil. Whilst the other branches of education are going on the patients must be taught to dress and undress, to be neat and tidy and to use the spoon, knife and fork.

The senses having been educated I proceed to the higher branches of learning, the teaching of the alphabet and of reading (the method of word-cards is useful), writing, dictation, arithmetic, drawing, a little elementary geography, the idea of weight and the value of money by what is known as the shop lesson. When some progress has been made, instruction in carpentering and gardening for boys, and domestic work and sewing for girls, proves useful, alternating the industrial with the purely intellectual training. Varied amusements, both in summer and winter, should be provided, for if the old adage "all work and no play makes Jack a dull boy" is applicable to the mentally sane, it is infinitely more so in the case of feeble-minded children. It is important to remember that the training, both physical and intellectual, should be commenced early, for the older the patient is when it commences the less chance there is of ultimate improvement and recovery. Many mothers have been misled by the idea that at the age of seven or fourteen there will be a sudden change from mental enfeeblement to mental brightness. From the nature of the case we should *a priori* consider this result impossible, and experience teaches that at these ages no sudden change for the better does occur.

I conclude this article with the histories of two cases, selected from many others, in which recovery took place.

CASE 1.—A boy aged six years was admitted into Darenth Asylum on June 5th, 1879. The father was strong, but had suffered from epileptic fits until the age of sixteen years. A brother of the father had had fits. There was no history of phthisis. Both parents were temperate, and there was no history of consanguinity. There had been six other children, five of whom had died from fits and hydrocephalus. The youngest child had fits. The mother had a fright when pregnant from contact with an imbecile child. The patient appeared to have been mentally sane when born, but had a fit when six weeks old and fits had recurred since up to a month before admission. The mental deficiency had been noticed since the onset of the fits. On admission he was found to be a fairly nourished child, of fair complexion with good use of his limbs. His head measured 20½ in. in circumference, 13½ in. transversely and 13¾ in. antero-posteriorly. He did not at this time suffer from epileptic fits. He was bright looking, good tempered, and clean in his habits. His mental condition was fair. He could read, write a few letters, count up to 45 and knew a few colours and shapes. He could not feed, wash or dress himself. On June 6th, 1887, he read fluently, spelt words of three syllables, and wrote and transcribed in a copy book. He worked compound subtraction sums, could count up to 1000 and knew the money tables. He was a good shoemaker. He was discharged recovered on Nov. 20th, 1888.

CASE 2.—A boy aged three years was admitted into Darenth Asylum on Aug. 2nd, 1882. The parents were not strong and the father had died of phthisis. There was a history of phthisis and epilepsy on the father's side and insanity on the mother's side. The parents were temperate and there was no history of consanguinity. This was the second child; the others were healthy. The mother underwent a considerable amount of trouble during pregnancy. The labour was difficult and the child was delivered by instruments. The patient had a fit when nine months old, which was supposed to have been due to his seeing his dead father in his coffin. On admission he was found to be fairly nourished, but pale, measuring thirty-five inches in height. The circumference of the head was 19 in.; the transverse diameter was 11½ in.; the antero-posterior diameter 12½ in. He was subject to convulsions. He was well behaved, good tempered and affectionate. He had good use of his limbs and was clean in his habits. His mental condition was fair. He could speak well, spell "cat," recognise one object, count up to six, but knew no colours. He could not feed, wash or dress himself. On July 13th, 1888, he could read from the primer, spell words of two syllables, work addition sums, count up to 300, repeat the seven times table and knew all the colours and shades. On July 11th, 1889, he was still making good progress in school and was sent to work in the tailor's shop. He was discharged recovered on Nov. 15th, 1890.

Sidcup, Kent.

AN OUTBREAK OF RÖTHELN.

BY JOHN MEREDITH, M.D., L.R.C.S. EDIN.,
MEDICAL OFFICER OF HEALTH, WELLINGTON, SOMERSET.

ARTICLES on Rötheln have appeared occasionally in the columns of THE LANCET during recent years, but they have referred chiefly to outbreaks of the exanthem at public schools or some such circumscribed areas. I here submit a brief description of the character of an epidemic of rötheln which was experienced in the Wellington district of Somerset during the year 1892. From all the information I can gather the epidemic visited many other places in the west of England. In THE LANCET of Feb. 25th last a short account of the report, which I sent to the local board of this district, for the year 1892 was published; and in that notice I was invited to give details of some of the cases of rötheln which I referred to in my report.

The exanthem has been felt mostly amongst children, but there were many exceptions, and in illustration of these I will describe the following case.

CASE 1. — A gardener aged thirty-five was taken ill suddenly on a Thursday. I was called to see him on the following Sunday, when I found him in bed. His body was covered with a dark-red eruption which disappeared on pressure, but which returned immediately on the removal of the pressing finger; it was most marked over the nates. The rash was raised above the skin and was perceptible to the touch. It was not uniform on close examination, but it might have appeared to be so when viewed from a distance or when seen in an imperfect light. There were irregular narrow white spaces between the coloured surfaces and there had been a sense of itching of the skin just before the appearance of the eruption. The temperature was 99° when I first saw the patient, but it had been higher during the preceding two days according to his wife's report. There was nothing to note regarding the pulse. The patient did not feel ill, but complained a little of muscular pain at different places. He, however, remained in bed for a day or two, although it was against his inclination. There was a good deal of pharyngeal redness, but nothing distinctive in the appearance of the tongue was noticed. The post-cervical glands were slightly thickened. The next day the rash had a dark mottled colour and was fading; a couple of days later it had disappeared and only the induration of the post-cervical glands remained. It usually happens in rötheln that these swellings are the first to appear and the last to leave. This patient had had an attack of scarlet fever fifteen years before and he desquamated profusely after it, but now there was only a little peeling and that of a fine sort. This case happened in December. Nine months previously I had attended his son aged six years for a similar illness. The streaky and raised character of the eruption and the itching of the skin and the swelling of the post-cervical glands were alike in both, as were also the slight suffusion of the eyes and the absence of all feeling of prostrating illness. The extent of the succeeding desquamation was similar in the two cases.

CASE 2.—A married woman aged forty-four was seen on Nov. 1st, when her body was found to be covered with an eruption like that of sparse measles. There were narrow pale spaces between the rash clusters, these being raised and perceptible to the touch. The rash was most marked over the back. The illness began with a certain amount of malaise and a feeling of sickness. The post-cervical glands were slightly swollen, and during the next day and the following days they became larger. There was a slight increase of temperature. I omitted to note whether there was any cutaneous itching before the rash appeared. The patient remained in bed a few days and then got up and went about her house work. She was passing through her catamenial period at the time; normal desquamation set in and became profuse on her hands as well as on other parts of the body, the cuticle coming off in flakes. Both she and her mother were positive that she (the patient) had had scarlet fever and measles when young and that she had desquamated most freely after the attack of scarlet fever, just the same as she did after this illness. As the patient was recovering, her daughter, aged seven, contracted the affection. The eruption and the other symptoms resembled those of the mother, but the subsequent desquamation was not similar. The child experienced only a slight amount of desquamation and that was of a fine sort. A little later a still younger child was observed to be unwell for a few days, but there was no rash. I did not see this child at the time. These children were with their mother throughout her illness.

CASE 3.—A single woman aged twenty-nine, assistant mistress in an infant school, informed me that she "felt quite well on the evening of Sept. 19th except for a little headache"; but that when she got out of bed on the morning of the 20th she noticed a spotty rash on her arms, neck and body. She did not feel ill but had a little itchy, burning feeling about the skin. The tongue was pale, and there was no sore-throat. No thickening of the post-cervical glands could be detected on that date, but they could be easily felt on the 21st. The rash was then (the 21st) well out all over the body: on the arms, chest, and side of the face it was spotty in character, being divided by meandering streaks of pale skin. On the lower part of the back and over the nates it appeared as one uniform sheet without white spaces being intermingled. The temperature was 99°. The patient left her bed on the afternoon of the 21st. The case progressed favourably, and she returned to her duties on the thirteenth day. If it had not been for her appearance she felt that she could have attended to her duties during the whole time. There was very little desquamation in this case; nor was there much in that of her father, a man sixty-four years old, who had had the like complaint in June. The character of the eruption and the swelling of the post-cervical glands were similar in both. Several of the patient's school pupils suffered from the exanthem, some in as light a form as this patient and others more severely. In two of these the desquamation was abundant, the cuticle coming away in flakes. A sister of one of the latter, after the illness, had a little fine desquamation and no flakes. The two were ill at the same time.

Desquamation is an irregular associate of rötheln, as may be further seen from the following cases which happened in a family in this town.

CASE 4.—A girl aged six felt ill before she got out of bed on the morning of Aug. 31st; she suffered from headache and felt sick, and vomited. However, she got up, but lay about drowsily during the day; she made no complaint. On putting the child to bed that evening her mother fancied she saw a curious tint about her face and chest, and next morning a rash was well out on the face and neck. This was preceded by a warm itchy feeling. Some sore-throat and feverishness existed. The temperature was 102°. The throat discomfort soon passed off. On Sept. 2nd the eruption was well marked. It had a "spotty" appearance, to use the expression of a neighbour, all over the body except the nates, where it was a uniform sheet of pinkish red without pale interspaces. The post-cervical glands were thickened from the commencement of the attack and increased in size during the second and third days. By Sept. 3rd the spotty-streaky eruption had extended to the extremities, that on the nates remaining unchanged. The temperature was 102°. Still the child did not seem ill, but took her food fairly well and laughed and played on the bed with her younger brother, who was constantly in the room, as it was found to be impracticable to keep them apart. By the 4th the rash was fading; the temperature was 100°. The tongue, which had been coated, was then clean and presented a strawberry appearance with raised papillæ. The case improved slowly, there being no complications or sense of prostration; on the 8th the patient bled freely at the nose and the temperature became normal; the child was bright and cheerful. At this date desquamation was beginning and soon became very considerable, the cuticle coming off in flakes and strips from the hands and feet. The induration of the post-cervical glands remained for months.

One peculiarity of this case is the length of time during which the febrile condition lasted, being fully a week; another was the change for the better being ushered in with epistaxis. I ascribe the length of time to the inherent constitution of the child. She is always slow in throwing off an illness, and a catarrhal condition in her case lasts about double the time it does ordinarily in children. In this she resembles her mother, who never gets over an ailment quickly. She is a long time recovering from a cold or any other discomfort, and it has always been so. This case looked suspiciously like one of scarlet fever; but I excluded this for the following reasons:—(1) The character of the rash was in no way scarlatinal, excepting the patch over the lower part of the back and nates, and the warm, itchy feeling experienced before the full development of the rash; (2) the presence of indurated post-cervical glands, increasing in size until the third day (this may not be of importance); (3) the absence of any great sense of prostration, as she was always ready for play; and (4) her little brother, who was constantly with her, remained well until the 21st (just three weeks from the time her case began).

CASE 5.—On the 21st the brother of the last patient, aged three, showed signs of being ill suddenly. On the next day an eruption was coming out on his neck and chest of a sparse measly form; the eyes were a little suffused (as, I may mention, were his sister's at the beginning of her attack); and the post-cervical glands were indurated. The child was not ill, but was naturally restless and ready for play. The rash was very well marked over the abdomen, especially so over the nates, but it was not like a uniform blush in this case, as was the case with his sister. In a few days it faded and disappeared, but the induration of the post-cervical glands remained for months. There was no desquamation in this instance—at all events, none to speak of; the boy's mother said she did not notice any.

In the report which I have referred to, it is mentioned that many cases of scarlet fever were notified under the Compulsory Notification of Infectious Diseases Act. I subjoin a description of three such cases which, like several others, came specially under my notice at the time they were reported.

CASE 6.—A girl aged seven was reported on the 9th of June as suffering from scarlet fever. I saw the patient on the 14th by the invitation of her medical attendant, who happened to be in the house when I called. I found the child covered with a rash, which I had no difficulty in recognising as that of rötheln and my medical friend concurred in the diagnosis, adding, however, that the character of the eruption then visible differed from that noticed by him five or six days before when he wrote out the notification paper. At the time of my visit the eruption consisted of clusters of spots with abundant white interspaces. The post-cervical glands were indurated and there was an absence of all sense of prostrating illness. The patient was bright and evinced a lively interest in the examination.

I have ventured to consider this as a case of rötheln and not of scarlet fever for the following amongst other reasons. At the time of my visit the eruption was admitted to be that of rötheln; now in this disorder cases not unfrequently occur where a rash develops, fades, and in about three days disappears, or seems to do so, but later on there is a sudden recrudescence; the interval between the two crops of rash is not always the same in all cases. It is difficult in a comparatively dark room such as the one this patient occupied to note distinctly the nature of a cutaneous rash; but it so happened that at the time I saw her it was a bright afternoon. In no form of exanthem is it more necessary to have a good light for examination than in rötheln.

CASE 7.—I was attending children in a family living next door to the above cases who were suffering from rötheln in as marked a form as any I have described. In one of these cases, that of a child aged four, pneumonia followed as a sequela and proved fatal; there was no albuminuria.

CASE 8.—A married woman aged thirty-two. Notification regarding this case reached me at noon on Aug. 11th. The next morning I called at the house and was met at the

door by the patient herself. Seeing apparently nothing the matter with her, I told her that she had been reported as suffering from scarlet fever and I asked her if she had been ill. Her answer was that she had had a rash upon her, which appeared suddenly on the morning of July 29th; that she was out in her garden at the time, and she had experienced some teasing, tickling feeling about her chest and other parts. Feeling a little "out of sorts" at the same time, she went in-doors, and to her surprise she found on examination that she had a "spotty" rash over the chest and abdomen. There was no sickness or diarrhœa. The "out of sorts" feeling passed speedily away. She attended to her household duties as usual and did not feel ill. There was no cutaneous eruption visible at the time of my inquiry on the 12th. She had slight thickening of the post-cervical glands and was desquamating freely, flakes as well as finer epithelium separating from her hands as well as from other parts.

CASE 9.—The last patient had a son aged two years, who had been reported in the same manner as his mother. This child I noticed had some little sores about his mouth and on his neck. His mother said he was quite well until the 6th, when a number of little papules appeared on different parts of his body and they were itchy, but no other form of rash was observed. I noticed that he had indurated post-cervical glands. He was not ill at the time, nor had he been so at any time. He did not lie down, and ate his food as usual. Very slight desquamation followed in this case.

I have come to consider these papular eruptions with white centres as varieties of rötheln when associated, as was the case here, and when nothing breaks or escapes from them unless they are scratched or rubbed. Case 8 seemed to me to be one of mild rötheln without a single scarlatinal feature unless the desquamation be taken for one; possibly it was this that caused it to be reported.

CASE 10.—The only other case of the kind which I need mention is that of a boy aged two years, who was reported on July 10th and inquired about on the 11th. I found the child's mother standing at the door when I visited the house; the child was playing in the garden. On looking at the patient I noticed that he had a rash—dark, mottled and fading—on the side of his face and neck, and on his chest and other parts of his body as well, I was informed; but still it was sufficiently distinct to show its sparse measles-like character. In short, it presented the appearance of rötheln rash on the third or fourth day. There was no indication of a sense of illness and there had been no failure of appetite in regard to food. No isolation was attempted, and the "scarlatina," to use the word on the notification paper, did not spread in that family or the immediate neighbourhood. No ill result followed from the patient going about covered with the exanthematous rash. I have not known any harm to happen in cases such as I have described.

Wellington, Somerset.

ON THE

POSSIBLE ADVANTAGES OF EMPLOYING DECALCIFIED MILK IN THE FEEDING OF INFANTS AND INVALIDS.

BY A. E. WRIGHT, M.D. DUB. &c.,
PROFESSOR OF PATHOLOGY, ARMY MEDICAL SCHOOL, NETLEY.

BEFORE Arthus and Pagès discovered that blood could be deprived of its coagulability by receiving it into solutions of oxalates and fluorides they had already discovered that milk in which the lime salts had been precipitated by these same additions would no longer clot with rennet. I shall endeavour to indicate a possible practical application of this fact. Milk curdles under two entirely distinct sets of conditions: (1) it curdles on addition of an acid and (2) it curdles under the influence of rennet (when the reaction of the milk is either neutral or slightly acid). The two varieties of curd which are obtained under these circumstances may be denominated "acid curds" and "rennet curds" respectively. Acid curds must inevitably be formed in the stomach after milk has been drunk if the gastric contents are allowed to become acid. Such curds (we are familiar with them in ordinary life in the form, for instance, of cream cheese or sour milk) are probably not sufficiently firm to set up digestive disturbances. On the other hand, rennet curds (such as we are familiar with in the form of renneted milk and of ordinary cheese) may be extremely firm. It is therefore in all probability these rennet curds which set up the familiar infantile dyspepsia of bottle-fed children. If this is so, the facts elicited by Arthus and Pagès would appear to be of dominating importance in the treatment of these dyspeptic conditions.

In order to appreciate this correctly the following facts must be attended to: (1) rennet coagulation is delayed and curdling becomes less and less firm as an increasing proportion of the lime salts of the milk becomes precipitated as insoluble salts (Arthus and Pagès); (2) addition of soluble lime salts[1] (up to a certain maximum) causes increased rapidity of rennet-coagulation accompanied by increased firmness of clot (Arthus and Pagès); (3) human milk contains 0·03 per cent. of lime (Bunge); (4) cow's milk contains 0·17 per cent. of lime (Bunge). It is evident from these facts that the rennet coagulation in the human stomach could be delayed by precipitating a portion of the lime salts contained in cow's milk. It is further evident that a great proportion of the lime salts in cow's milk could be dispensed with without injury to the nutrition of the human infant, inasmuch as the infant, who does not need to walk for more than a year after birth, is fed with milk which is provided with a view to the calf walking almost as soon as it is born. Lastly, the question of a suitable precipitant for the lime in the milk comes up for consideration. As I have already shown, the salts employed by Arthus and Pagès were the fluorides and the oxalates—that is, salts which have poisonous properties and which cannot be employed in dietetics. In lieu of these citrate of soda[2] may be employed as an efficient precipitant. I find in the samples of milk with which I have experimented that an addition of 1 in 200 of citrate of soda—one-fiftieth volume of 25 per cent. citrate of soda—suffices to prevent any rennet coagulation, whilst it can hardly be detected by the palate. Cow's milk with a somewhat less addition of citrate of soda would, with regard at any rate to its lime salts, constitute a true "humanised milk. If it should turn out that the acid curds are also contributory to the dyspeptic troubles of infants, super-addition of the customary bicarbonate of soda or lime-water[3] would apparently be indicated.

THE RELIEF OF INTRA-VENTRICULAR PRESSURE BY DRAINING THE SUB-ARACHNOID SPACE IN TUBERCULOUS MENINGITIS.

BY CHARLES A. MORTON, F.R.C.S. ENG.,
SURGEON TO THE BRISTOL GENERAL HOSPITAL; DEMONSTRATOR OF ANATOMY IN UNIVERSITY COLLEGE, BRISTOL; AND PATHOLOGIST TO THE BRISTOL CHILDREN'S HOSPITAL.

MR. PARKIN has recorded a very interesting case of tuberculous meningitis[4] in which he drained the subarachnoid space behind the medulla, and in which he refers to two papers of mine on the subject.[5] My dissections were not made, however, to demonstrate that the subarachnoid space could be drained with advantage in this position; they were made simply to find out the condition of the opening between the fourth ventricle and the subarachnoid space. Mr. Parkin, however, made use of the dissections in his operation, and I am glad to think they were thus of use; but I cannot myself help thinking that it is a rather dangerous region to operate in and especially to manipulate a probe so near the fourth ventricle. The question of the relief of increased intra-cranial pressure in tuberculous meningitis is a very interesting one to me, and perhaps Mr. Parkin will pardon me if I take exception to some of the statements in his interesting paper. Since I wrote the first paper to which I have referred, during the time I have been patho-

[1] This fact does not appear to be taken advantage of, as no doubt it ought, by the purveyors of rennet extract.

[2] This addition has already been employed in preventing the coagulation of the blood by Griesbach and Pekelharing.

[3] Bunge (Physiological Chemistry, translated by Wooldridge) has pointed out with respect to the latter that lime-water contains less lime than the cow's milk to which it is added, so that, paradoxical though it may seem, milk diluted with lime-water contains less lime than the natural milk. Lime-water probably aids the digestion of cow's milk by virtue of its alkalinity, which postpones rennet-coagulation.

[4] THE LANCET, July 1st, 1893.

[5] Brit. Med. Jour., Oct. 17th, 1891, and April 8th, 1893.

logist to the Children's Hospital, I have always had the question in my mind when making post-mortem examinations in these cases. Mr. Parkin says that it is immaterial for the sake of the argument in favour of draining whether the softening around the ventricles is due to increased pressure or not; but it can hardly be immaterial—for if the softening is due to the pressure and can be shown to be a likely cause of the symptoms and tendency to death it is an additional argument in favour of draining so as to relieve that pressure. Mr. Parkin, however, in his paper subsequently indicates his belief that the softening is the result of pressure, for he says: "The necropsy showed that death was inevitable, as the extensive softening caused by the pressure was an indication of great brain damage." In this case the pressure had been removed, and yet he thinks that the softening that had already been caused by it proved fatal, which shows how important is the question as to whether the softening is the result of the increased pressure. That it is mainly so was my contention in my first paper, and I do not propose to go into the question again here beyond saying that I think the fact that the softening is never where the meningitis is most intense—viz., at the base, especially around the Sylvian fissure—has seemed to me (since I wrote that paper) to be an additional argument against the softening being inflammatory. But I have recently made a post-mortem examination in a case of tuberculous meningitis (in which the child died in convulsions after a week's illness) where, although there was marked basal meningitis with typical tubercles, there was no excess of fluid in the ventricles and no softening. I am sure that no fluid escaped unnoticed at the necropsy. Even putting this case on one side I do not think there is at all strong evidence that increased pressure is the cause of death in these cases. Mr. Parkin thinks his case was not successful because it was drained too late and after too much softening from pressure had taken place, and suggests that one should operate in the "irritative" stage before coma occurs; but I do not see any reason to suspect increased pressure at this stage. Vomiting and headache—the chief symptoms of this stage—are not symptoms of compression; it is only the coma of the final stage which suggests it, and yet here, as I have already pointed out,[6] we may have unilateral convulsions or hemiplegia, which can hardly be accounted for by a generally increased pressure; neither can I think that the child's cry in Mr. Parkin's case was due to "distension pain." I believe that pressure would abolish sensibility in every way until a stage of profound coma was reached. The pains belong to an earlier period, when, I think, there is little evidence of pressure.

There is another argument to be advanced against the view that this softening is the cause of death. The parts found softened are the white matter around the lateral ventricles and the corpus callosum. These are not the parts a lesion of which one would expect to cause coma or cardio-respiratory failure. One does not find the convolutions or the medulla softened in these cases. It is known now from Mr. Parkin's case that the relief of pressure will only somewhat modify the symptoms and will not remove the coma or save life; nor, it seems to me, can one be sure of a better result even if the softening is not present. There is, however, another case on record which also shows that relief of pressure in the final stage only gives temporary relief—I refer to Mr. Kendal Franks' case,[7] in which consciousness returned and hemiplegia diminished but soon increased again, although drainage was maintained and the necropsy showed no excess of fluid. It is quite possible in this case also that the brain may have been softened; but, as I have just pointed out, this softening is not in a position to cause the final symptoms of tuberculous meningitis. Both Mr. Parkin and Mr. Mayo Robson[8] argue from the analogy of tuberculous meningitis to tuberculous peritonitis that drainage ought to do good in the former condition as it does in the latter; but these are surely very different conditions to deal with and there is no analogy to guide us. It is not the pressure of the fluid which kills in tuberculous peritonitis; the removal of the fluid is generally undertaken now to cure the local tuberculosis. In the case of tuberculous meningitis it is not proposed to cure the tubercle but to relieve acute pressure. The condition is certainly analogous to tapping a pleural effusion to relieve dyspnœa from pressure on the lung and displacement of the heart, but here one feels sure of the cause of the symptom which is so serious, but one cannot say that the coma and failing cardio-respiratory action are certainly due to increased intra-ventricular pressure in meningitis.

Mr. Parkin concludes his paper by recommending that the withdrawal of fluid be gradual and that the best mode of doing this is by tapping over the medulla; but in his operation he says: "On passing a curved probe along the under surface of the cerebellum and slightly raising it a very large quantity of clear cerebro-spinal fluid (about two or three ounces) gushed out," nor does it seem to me possible to gradually evacuate the fluid in this situation. In my dissections, after the dura mater was divided I came on the thin bag of the arachnoid, and as soon as this was nicked the fluid rather quickly flowed away.

Is one justified in further trials of tapping in tuberculous meningitis? The temporary benefit derived in the few cases already operated on would perhaps encourage one to try again, but for my part I am afraid with but little hope of success.

Clifton, Bristol.

[6] Ibid., Oct. 17th, 1891.
[7] Ibid., Dec. 6th, 1890.
[8] Ibid., Dec. 6th, 1890.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL AND THERAPEUTICAL.

POISONING BY PRIMULA OBCONICA.

BY E. BURDETT POOLEY, L.R.C.P. EDIN., L.R.C.S. IRELD.

ON Jan. 28th I was sent for to see a man aged seventy-nve. He was suffering from erysipelas, slight in character and affecting only the upper part of the face. After the usual treatment this subsided and in a little while I allowed the patient to go into his greenhouses (he was a market gardener), whereupon the disease immediately reappeared. This having occurred several times, I advised him to remain in the house for a longer period, but even then he had two attacks, the last occurring without his leaving his bedroom. In all, there were six relapses, the parts affected being the forehead, just above the eyebrows, the cheeks and sides of the nose and the fingers of both hands. At first I supposed the fresh attacks to be the result of renewed chill, but in the case of the last two, and especially the last, this cause was precluded. The patient now informed me that on these two occasions he had had flowers brought to him in the house to work into wreaths, and on further investigation I found that previously to each of the six attacks he had been working with the blossoms of the primula obconica, a small white or pale lilac primula, much used in funeral wreaths. I advised him to avoid this plant, and he did so for about three months; but during the past week he again used it, with the result that the inflammation immediately reappeared in the skin of his fingers. The following points in this case may be of interest. The patient, who had been a gardener most of his life, had never suffered any inconvenience from handling this plant until after the attack of January (which appears undoubtedly to have been erysipelas, as his son, who never touches the flowers, had also a sharp attack of erysipelas of the face). In the secondary attacks the parts affected were those which a man would naturally wipe with his fingers when heated, and with which, therefore, the juice of the plants he was handling would be brought into contact. The attacks occurred always after he had used this particular flower, and only then. The plant is known amongst gardeners to affect certain individuals, but this patient appears to have been rendered susceptible to it by the attack of erysipelas.

Dalton-in-Furness.

AMPUTATION AT THE SHOULDER-JOINT IN A BOY AGED SIX YEARS.

BY JOHN EVANS, M.R.C.S. ENG., L.R.C.P. EDIN., L.S.A.,
SURGEON TO THE EBBW VALE COMPANY, BEAUFORT.

THE following case is, perhaps, worthy of record in the columns of THE LANCET, as it is seldom that an operation of this kind is performed in a collier's small cottage.

A boy aged six years was on his way to school on March 15th when he fell under the wheels of a tram loaded with limestone weighing about ten tons. The tram

passed over his left arm below the shoulder and completely severed it. The case was first seen by Mr. P. Tolputt, assistant surgeon to the Ebbw Vale Ironworks, who immediately sent for me. I determined to operate at once. Chloroform was administered by Mr. Tolputt, who took steps to arrest hæmorrhage by compressing the left subclavian artery. I enucleated the shoulder, tied the axillary artery, twisted all bleeding points and proceeded to make flaps from the available skin, of which there was very little at my disposal. However, enough was found to form anterior and postero-external and postero-internal flaps; these were sutured and the patient was allowed to come to. On being asked how he felt he answered in the usual provincialism of "Proper." The arm was dressed with marine lint and plenty of iodoform. The patient was again seen at 4 P.M.; he was just recovering from the shock. His temperature was 98·6° F.; at 8 P.M. it was 100°, but he was doing well.

On March 16th (9 A.M.) the temperature was 98·6°; there was no discharge and no tenderness in the wound; at 12 A.M. the child was bright and well, with a temperature of 98·4°; at 5 P.M. the temperature was 99°; at 8 P.M. it was 99°.—17th: The temperature is normal. The child is doing well and there is no discharge.—18th: The arm was dressed to-day, as there was a slight discharge. The flaps are in good position but slightly œdematous from the crushing.—19th: The arm was dressed again. Three of the sutures have given way, but there is no suppuration.—20th: The patient was ordered a bread-and-milk poultice once a day.—21st to 26th: He is still seen twice a day and the arm is dressed with bread-and-milk poultices.—28th to 31st: The arm is dressed once a day.—April 6th: The arm is healed completely. The patient had a fit from eating tinned salmon, which we had forgotten to warn the parents against.—7th: He is better to-day.—11th: He came up to see us to-day, his arm being entirely healed and the flaps and cicatrix in very good condition.

Remarks.—This operation was undertaken solely by myself and Mr. Tolputt, as there was no time to send for further assistance. The patient had only one shock to overcome—the shock from the accident—when we amputated the limb. To this and to the careful nursing of the mother must to a great extent be ascribed the success of the operation. The notes of the case were taken by Mr. Tolputt.

Beaufort.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

TRANS-PERITONEAL LIGATURE OF THE RIGHT EXTERNAL ILIAC ARTERY FOR INGUINAL ANEURYSM IN A PATIENT WHO HAD UNDERGONE A SIMILAR OPERATION ON THE LEFT SIDE ALSO FOR INGUINAL ANEURYSM.

(Under the care of Mr. MAKINS.)

WE give below the further history of the patient on whom Mr. Makins performed ligature of the external iliac artery by the transperitoneal method for left inguinal aneurysm, the account of which we published in our columns[1] after the complete recovery of the patient. The history of this patient—one of the first operated on by this method in this country—possesses additional interest and importance from the fact that an operation has lately been performed on the other side for aneurysm in a similar situation. Our readers can now compare the operations, contrast the difficulties presented on the two sides, and consider the advantages or disadvantages presented by this method as contrasted with the older one of extra-peritoneal ligature. The aneurysm on the left side was the larger; but independently of this the anatomical relations of the artery rendered the operation more difficult on that side. The operation has also been performed in this country by Mr. Mitchell Banks and Mr. W. H. Brown, hence our experience of it is still limited. The arteries in this case were ligatured at an interval of seven months and a half; an account of the first operation will be found in THE LANCET of Dec. 10th, 1892.

The patient was a carpenter aged thirty. His left external iliac artery was ligatured on Sept. 16th, 1892, and he left the hospital recovered forty-seven days later. On Dec. 20th he experienced great pain in the right groin, where he had previously noted increase of pulsation himself. He then came to the hospital and a small aneurysm immediately above Poupart's ligament was discovered. On Jan. 10th, 1893, he again became an in-patient, and he remained in bed in the hospital until February 10th. During this period he was kept strictly at rest, and iodide of potassium in from five- to ten-grain doses was given three times daily. Under this treatment the aneurysm lessened in size, so as not to appear very much more than a dilated artery. As he wished to go out for private reasons, and as an operation did not seem urgent, he was allowed to go home for a time. He came weekly, however, to be examined, and on May 2nd he was readmitted to the hospital. The condition was then as follows: The patient was a stout, well-nourished man, with florid complexion and dilated capillaries. The arteries were not generally rigid or hard. There was no evidence of visceral disease. There was an area of pulsation about three inches in diameter above Poupart's ligament upon the right side, but it was difficult to define the exact limits of a tumour as the abdominal wall was very fat. He had considerable pain in this groin when he walked. Pulsation in the anterior tibial artery was free, but it was weaker in the posterior tibial artery than in that artery on the left side. A firm linear cicatrix was seen in the left linea semilunaris, and in the left groin a small, hard swelling indicated the site of the aneurysm that had been cured seven months previously. Pulsation was well marked in both tibial arteries and except for occasional neuralgic pain in the foot he suffered no inconvenience as regards the left limb. On May 3rd, 1893, the patient was anæsthetised with alternating chloroform and ether. An incision commencing one inch below the level of the umbilicus and four inches in length was made in the right linea semilunaris. The abdomen was opened, the small intestines packed away with two flat sponges and the posterior wall exposed. The artery was then seen below the termination of the ileum crossed by the spermatic vessels. Examination of the aneurysmal sac from within showed it to be about one inch and a half in diameter. The peritoneum over the artery was divided, the artery ligatured with two strands of floss silk tied with separate reef knots, and then the peritoneum was sutured over the vessel. The abdominal wound was closed with five silkworm gut sutures and dressed with bicyanide gauze. The limb was enveloped in cotton-wool fixed with a flannel bandage. The after course was uneventful. The limb never fell markedly in temperature. On the third day pulsation was noted in the anterior tibial artery and in the posterior tibial artery a week later. The body temperature once rose to 100° F. on the second day, but afterwards remained normal. The abdominal wound was dressed on the eighth day and found to be healed; the sutures were removed and strips of strapping applied. He had no pain or swelling of the abdomen. On the second day he had an attack of vomiting, which passed off without further trouble. On the seventh day the bowels were opened by enema and after this he was put on ordinary diet, having been previously restricted to milk and beef-tea. He was kept in bed five weeks after the operation and was then allowed to get up, and on the thirty-eighth day he left the hospital, a small, hard swelling marking the position of the aneurysm and the limb being otherwise normal. The patient since the first operation wore a strong abdominal belt, this was refitted and he continues to wear it. He has now resumed his occupation as a carpenter.

Remarks by Mr. MAKINS.—I believe instances of ligature of both external iliac arteries are rare; one such case has occurred in the practice of St. Thomas's Hospital during the past twenty-five years, but in that case the interval between the two operations was considerably longer than it was in this case. The transperitoneal operation was repeated, since the first had proved most successful, and the aneurysm was situated entirely above Poupart's ligament. The operation on the right side proved much easier than that on the left, since the crossing of the ileum was on a higher level than was found to be the

[1] THE LANCET, Dec. 10th, 1892.

case with the sigmoid meso-colon on the left. The artery also was much more prominent on the brim of the pelvis. Three reasons contributed to the delay in performing the second operation: first, the man himself wished to wait; secondly, the aneurysm was very small, perhaps not the most satisfactory condition for success; and thirdly, I thought time would probably be of advantage in the establishment of freer collateral circulation. With regard to this last point the case offered to me a surprise; the new circulation was established so much more rapidly and satisfactorily than occurred after the first operation. On the first occasion the limb was very cold and the patient suffered much neuralgic pain; on the second the local temperature fell little if at all and he had no pain. One should bear in mind that on the first occasion it was thought better to ligature the epigastric artery, and that this was not done on the second occasion; but I am inclined to think that the rapid establishment of the collateral circulation was rather dependent on the enlargement of the branches of the internal iliac artery on the opposite side resulting from the obstruction of the first external iliac artery.

ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

A CASE OF PENETRATING FRACTURE OF THE SKULL; LACERATION OF THE SUPERIOR LONGITUDINAL SINUS; TREPHINING; REMOVAL OF DEPRESSED BONE; SUBSEQUENT HERNIA CEREBRI; RECOVERY.

(Under the care of Mr. HENRY G. RAWDON.)

WE do not propose to add much to the remarks made on the points of interest raised by this unusual case. We have recently drawn attention to the occurrence and prevention of hernia cerebri after compound fractures of the skull with injury to the brain substance; but, besides the onset of the hernia cerebri and the defect of vision dependent on the injury to the cerebral substance, Mr. Rawdon's case demonstrates the great risk from hæmorrhage which sometimes follows wounding of the superior longitudinal sinus and the necessity of free exposure of the sinus if effectual means are to be taken to arrest the bleeding. It may not be amiss to mention one or two cases in which this hæmorrhage has proved rapidly fatal. Recently a case of punctured fracture of the skull with wound of the superior longitudinal sinus proved fatal at one of our metropolitan hospitals during operation in consequence of the profuse hæmorrhage, which could not be controlled. Dr. Manley[1] describes a case of depressed fracture near the occipital protuberance, where after the removal of the trephine disc and elevation of some depressed fragments of bone an uncontrollable gush of blood ensued and the patient died in a few moments. Although not actually a wound of the sinus the following bears on this question. Drs. Bullard and Bradford,[2] when dissecting up a flap over the occiput with the view of trephining for cerebellar tumour, divided a vein in the middle line which communicated freely with the torcular Herophili, the bleeding from which was so profuse as to cause death in a few moments. The hæmorrhage is always extremely rapid, especially if the opening is near the torcular Herophili, and it is much increased if there is any impediment to the respiration.

A girl aged seventeen was admitted on Feb. 9th, 1892, into the Royal Southern Hospital in a state of profound syncope and collapse, suffering from a compound fracture, with depression of the occipital bone. On inquiry it was elicited that the patient had been cleaning an upper window and, overbalancing herself, had fallen from a height of thirty-one feet upon some iron railings, impaling her head on one of the spikes and also lacerating her left arm and left leg, the latter extensively. Such was the force of the impact of the girl's body upon the railings that a portion of them, including the rail, the spiked head of which had penetrated the skull, had been actually snapped off, and before she could be extricated her head had to be literally lifted off the spike. She was brought to the hospital by the ambulance, and the surgeon in charge reported that when he first saw her she was pulseless and appeared to be actually dead. The ground near her head was saturated with blood and he noticed some brain matter lying about the wound. The spike was covered with blood for over two inches, but the precise depth it had penetrated the brain is purely conjectural. After admission the patient rallied and became partially conscious. The bone injury was through the occiput and about two inches and a quarter above the protuberance. It extended from a little to the left side to fully one inch and a half to the right side of the median line. The fractured opening was more or less quadrangular in shape and on examination the presence of depressed bone was easily made out. Chloroform was administered. The scalp wound was enlarged and a moderate-sized trephine was applied over the upper edge, well to the right of the median line. A half-disc of bone was removed and then the overlapping edges were cut away to facilitate the removal of the depressed fragments, which consisted of two fairly large pieces. The larger, lying on the right side, was first removed; the second was nearer the median line. It was evidently for the moment acting as a plug to a large rent in the superior longitudinal sinus, for its removal (it was quite detached from the dura mater) was instantly followed by an alarming gush of blood, which was promptly stopped by Mr. Robert Jones placing the end of his finger through the laceration. The patient was quickly raised up to an almost sitting posture; this expedient was fortunately effective in so far controlling the hæmorrhage as to allow time for the edges of the tear to be sutured with fine catgut. The wound made in the dura mater by the spike was ragged, but it did not involve the lateral wall of the sinus. Several particles of brain matter were observed to come away during the operation. It was not thought prudent to close with sutures the torn opening in the dura mater as more fragments of broken-up brain might be lodged beneath it and would have to be discharged, and also lest by doing so it might cause dragging on the sutured sinus. Every care was taken to make the operation an aseptic one and antiseptic dressings were employed, but it was doubtful whether asepsis was obtained. The character of the wound and the comparatively long exposure to the air probably rendered this unusually difficult to secure, but the wound was always kept absolutely pure and inoffensive. The patient became conscious shortly after the operation. For the first few hours the foot of the bed was well raised to favour the cerebral circulation—an important matter considering the great blood loss the patient had sustained. Soon after the operation a tablespoonful of brandy in two of water was given per rectum, but with this exception no stimulant was required in the after-treatment of the case. She suffered occasionally from night restlessness and sleeplessness, but these symptoms were relieved by small doses of morphia (quarter of a grain) given hypodermically. With the object of compensating for the loss in volume of the blood, enemata containing two ounces of warm water were ordered every hour and a half and were continued for some twelve hours; they were well retained. During the night she retched once or twice; even a tablespoonful of water (she complained of thirst) provoked vomiting. For some days, therefore, anything by the mouth was interdicted and she was supported entirely by nutrient enemata. As she became able to retain and digest food the enemata were gradually discontinued.

For the first week the patient's pulse was very rapid and weak, being 130 to 140 per minute. The temperature was also high, fluctuating in the twenty-four hours between 101° (lowest) and 105° (highest). Towards the latter end of the second week the pulse became stronger and less rapid, but for several weeks it remained unduly high. The temperature also gradually improved and about the fourth week became more normal. It was early discovered that the patient's eyesight was defective; she complained of not being able to see at times. Her pupils, it was noticed, were rather widely dilated. Her mental powers appeared to be quite unaffected; only a little night rambling occurred during the time her temperature was high, but this passed away as she convalesced. The wound was generally dressed every other day. For some days fragments of brain substance came away on the dressings and a drachm or two of a light-coloured serous fluid also escaped, suggestive of the cerebro-spinal fluid. About the tenth day a hernia cerebri began to appear, and notwithstanding the care taken to afford a gentle support by a bandage it slowly increased till it attained a diameter of two inches and a half; it assumed the usual mushroom-like character. At first the hernia presented an irregular and sloughy appearance, but after a single pencilling with the solid nitrate of silver the surface became clean and healthy-looking. It was extremely difficult to apply direct counter-pressure, especially as the patient rebelled against the bandage being brought under her chin, where it would have afforded the most perfect counter-support to the hernia. Failing this, it was found that the

[1] Annual of the Universal Medical Sciences (Sajous), 1892, vol. iii., A. 29.

[2] Ibid., A. 30.

best means of controlling the protrusion was by applying a moist (antiseptic) flat sponge folded in an envelope of guttapercha tissue (over the protective) upon the hernia and fixing it in position by broad strips of adhesive plaster passing round the head. In this way a considerable amount of support was afforded and the further increase of the hernia was effectually checked. In the early part of April the wound assumed a healthy aspect and cicatrisation fairly set in at the circumference, the protrusion gradually diminishing and receding till it had entirely healed over. This was completed in the second week in May. The patient was discharged on June 3rd. There was at that time a distinct pulsation, but no bulging of the cicatrix; it was quite on a level with the scalp.

Remarks by Mr. RAWDON.—There are three points presented by this case worthy of consideration: firstly, the laceration of the superior longitudinal sinus, attended with copious hæmorrhage at the time of the accident, and with an alarming recurrence on removing the depressed fragments of bone; secondly, the supervention of the hernia cerebri and the vexed question of its appropriate treatment; and, thirdly, the defective eyesight, which was evidently due to injury of the right posterior lobe of the brain. There can be no doubt that it was fortunate for the patient that the overlapping bone had been sufficiently removed, as it permitted the lacerated wound of the sinus being seen and dealt with; for the rent was a large one and its propinquity to the torcular Herophili added to the danger of the hæmorrhage ending fatally. With regard to the treatment I believe that the prompt raising of the patient to a nearly sitting position was an expedient of great value, for by minimising the out-pour of blood it afforded the opportunity of closing the rent with sutures. I find that Professor Nancrede, the writer of the article on "Injuries to the Head" in "Ashhurst's International Encyclopædia of Surgery," in referring to wounds of the sinuses says: "Warner, Pott and Lister report cases where wound of this sinus (longitudinal) was readily recovered from"; but he goes on to say: "In all such cases either the application of the trephine or the elevation of fragments has given free access to the wounded vessel—i.e., sinus; where the opposite conditions obtain a fatal hæmorrhage does at times occur." In a footnote at p. 162 of Jacobson's "Surgical Operations" it is stated that Dr. Parkes[3] successfully "arrested a terrific hæmorrhage from a rent in the superior longitudinal sinus by introducing three fine catgut sutures." My attention has been drawn to a short paper in the *Medical Week* of Jan. 13th, 1893, wherein it is stated (page 23) that Dr. Schede (a German surgeon) had successfully stitched wounds of large veins on several occasions, making mention of the successful adoption of this procedure in the case of an accidental wound of the internal jugular vein during an operation and also in the case of a wound of the inferior vena cava inadvertently caused during the extirpation of a kidney. He used the continuous suture of the finest catgut, employing very fine Hagedorn's needles—so fine as to leave no holes through which the blood could escape. He says that the needles may traverse the coats of the vein, but it is important that the two sides of the wound should be accurately brought into contact. Dr. Schede has met with invariable success in all cases in which he has adopted this course. With respect to the second point—namely, the hernia cerebri—I would remark that this complication is probably of less frequent occurrence since the advantages of asepsis have become so generally recognised. When it does occur the best authorities, I observe, vary considerably in the directions and advice they give as to its repression and treatment. I am, however, satisfied that in my patient's case the support afforded by the sponge and plaster[4] was of the greatest use. Had the fungus been sliced off or removed, as some suggest, in all probability the lateral ventricle of the brain would have been opened. The third and last point I desire to remark upon is one of special interest, as it affords evidence of the localisation of the cortical centre for vision. The defective eyesight of which the patient complained continuing a month after she had left the hospital, at my suggestion Mr. Charles C. Lee, surgeon to the Liverpool Eye and Ear Infirmary, undertook to examine her eyes. He reports that the patient is practically blind on her left side, the blindness being common to both eyes. The ophthalmoscope revealed no intra-ocular mischief in either eye, but on using the perimeter he found well-defined left hemiopia of both eyes, though not equally, the left being much the more seriously and extensively affected; the area of blindness occupied the complete half field and even passed considerably over the centre vertical line to the right upper area of the field. The area devoid of sight in the right eye was less in amount than that which existed in the left, but here it was continued across the centre to the right side to a small extent. The part of the brain which had sustained injury was made out in this case by taking exact measurements of the position of the cicatrix and afterwards on the cadaver by drilling the occiput at the corresponding spot. On the removal of the calvaria it was seen that the first annectant gyrus was the part which had been penetrated and to some extent destroyed. Judging from the character of the blindness it may be inferred that the cuneus was also injured along with the occipital lobe.

[3] Annual of Anatomy and Surgery, vol. viii., p. 118.

[4] The "Heftband," which only adheres to itself, proved the best, as the plaster substance did not come off or stick to the patient's hair.

Medical Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Case of Pharyngeal Spasm.—The Diagnostic Value of the Diazo Reaction.

A MEETING of this Section was held on May 19th, Dr. WALTER G. SMITH, President, in the chair.

Dr. H. T. BEWLEY related a case of Pharyngeal Spasm in a man who, having enjoyed good health up to Sept. 27th, 1892, woke up the next morning unable to swallow. This state continued until he was admitted into Adelaide Hospital on Sept. 30th. He was a small-made and pale but not thin man. As he lay in bed he suffered constantly from hiccough. When he tried to swallow anything the attempt excited much spasm of the pharynx and larynx. He was able to get food, especially solids, into his œsophagus, but he did not seem to be able to swallow it wholly, and after a prolonged struggle the food was generally regurgitated into the mouth and expectorated. The struggle to swallow caused him much distress. Otherwise he was sound in body and in good health. He continued to be unable to swallow for two days; then Dr. Bewley passed a stomach-tube and introduced some milk into his stomach; the tube passed readily and caused no distress. About two hours after the patient suddenly died without a struggle. A post-mortem examination gave negative results. The convolutions were slightly atrophic and some nuclei in the medulla had very pigmented nerve cells; but with these exceptions every organ in the body was healthy, the pharynx, larynx and œsophagus being perfectly so. Dr. Bewley was inclined to think that the case was one of paralysis of the œsophagus from functional causes, the food lying in the passage and exciting spasms of the surrounding organs; he was, however, unable to explain the persistent hiccough and sudden death.—Dr. PURSER said if the movements of respiration stopped first it would probably be a paralytic lesion, whilst if the heart stopped first it would have been probably an irritative lesion.—The PRESIDENT stated that he had at present under observation a woman in whom attempts to take solid food caused intense pain about the cricoid cartilage. He passed a bougie down the œsophagus under the influence of an anæsthetic, but no stricture could be felt.—Dr. BEWLEY, in reply to Dr. Purser, stated that the dysphagia had lasted for about five and a half days.

Dr. W. R. DAWSON said that the first observations on the Diagnostic Value of the Diazo Reaction as applied to the Diagnosis of Disease were published by Ehrlich in 1882. The present paper was based on examinations of the urine of 227 cases made in Cork-street Fever Hospital, comprehending forty-seven varieties of disease. Those which gave the reaction were all of a febrile nature, and it was particularly frequent in enteric fever (over 70 per cent. of the tests between the fifth and twenty-first days showing it), in measles and in tuberculous disease, whilst rather less than half the testings in typhus fever yielded the reaction. Its presence was not indicated by any gross peculiarity in the urine, and experiment showed that neither free acetone nor any direct product of Eberth's typhoid bacillus was responsible. Upon the whole, its value in the diagnosis of enteric fever seemed to be considerable, but negative rather than positive, and it might probably also be used to distinguish

measles from rötheln, since the latter disease did not give it.—Dr. PURSER said that the test occupied a curious position amongst urinary tests, because it was a test for something which we did not know. The test was empirical and so was the result. He was inclined to think it had some value in typhoid fever. If there was a case in which the diagnosis was very evenly balanced between typhoid fever and something else and the reaction was absent he would be inclined to regard the case as not one of typhoid fever. The reaction must show a blood-red colour and the froth must be red when the liquid was shaken up. He remembered a case which was diagnosed as typhoid fever for a long time, but in which the reaction could not be obtained and the case afterwards proved to be one of acute tuberculosis. The sodium nitrite solution should be freshly prepared at each time of testing as it was very unstable.—Dr. J. W. MOORE and the PRESIDENT also joined in the discussion and Dr. DAWSON replied.

SECTION OF OBSTETRICS.

Ovarian Tumours.—Porro's Operation.

A meeting of the above Section was held on May 26th, Mr. A. H. HORNE, President, in the chair.

The SECRETARY read for Dr. C. YELVERTON PEARSON notes of a case of Ovarian Tumour that had been successfully operated upon.

Dr. A. J. SMITH exhibited specimens of Ovarian Tumours. The first was a simple unilocular tumour. The second specimen was one of great interest. The patient complained of great pain in the right inguinal region, and Dr. Smith diagnosed a small tumour in the right broad ligament. He operated and removed a specimen of hydrops folliculorum. At the same time he examined the left ovary and noticed that it was small and felt normal. However, the pain which the patient complained of was never entirely removed, and a month after the operation it became of a boring character and was referred to the original place. The patient came to him recently and he had the assistance of both the President and Mr. M'Ardle in examining her. The left ovary seemed to be fairly normal, but had become enlarged since the previous examination. They decided to explore. Having removed the ovary they turned to the pedicle, which was left, and they found that it had become adherent to the intestine. They endeavoured to separate it, but found that the adhesion of the pedicle to the anterior wall of the intestine was so great that they would have to resect the intestine, so they determined to leave it alone. After the second ovary had been removed the pain disappeared.

Dr. MORE MADDEN exhibited: (1) An enormous Uterine Tumour, together with Gravid Uterus, removed by the Müller-Porro operation; (2) a large Submucous Uterine Fibroid Tumour recently removed by Cæsarean section in which it was necessary to deliver with the midwifery forceps, the patient making a good recovery; (3) the Ovaries and Tubes recently removed, as a result of hæmorrhage from fibromyoma; and (4) an exceptionally large Multilocular Ovarian Tumour removed from a patient in the Mater Misericordiæ Hospital.

Dr. COLAHAN (Galway) read a paper on a Successful Case of Porro's Operation. The case was one of pregnancy occurring in a rachitic dwarf, in which it became necessary to perform abdominal section, delivery being impossible per vias naturales. Porro's Cæsarean hysterectomy was the proceeding adopted to complete delivery and was successful in saving both the mother and child.—Dr. SMYLY said that it was a matter of surprise to him that in this country of all the countries in the world Porro's operation should be such a rare thing. He did not agree with Dr. Colahan that the results of Porro's operation were equally good as compared with Cæsarean section. However, it was not a question that they could dogmatise upon, as the really bad cases fell to Porro. Still, the mortality from Cæsarean section was only about 5 per cent., and he did not think that Porro could show as good a result as that.—Dr. A. J. SMITH said the point to which he would specially refer was whether a woman should be sterilised or not in doing Cæsarean section.—Dr. MORE MADDEN thought that it would add to the advantages of the Academy if their fellow-members throughout the country would give them their experiences oftener. He thought the operation which Dr. Colahan had done reflected great credit on his surgical skill. In cases of rachitic pelvis the Cæsarean section had been eminently successful in Scotland, and in the hands of Dr. Cameron there had been only about two deaths in twenty operations, whilst the mortality of Porro's operation has, according to Sir Spencer Wells, been about 56 per cent. Therefore he thought that the Cæsarean section was safer for the women, in whose interest it should be performed.—Dr. COLAHAN replied.—In the discussion that followed Dr. COLAHAN, after thanking the President and other members for their very flattering remarks, stated that it was the first time, as far as he knew, that the operation had been performed in the west of Ireland, and not anticipating such an undertaking he found himself without a serre-nœud at the last moment; and although the use of them was quite successful, yet he would not for choice use silver sutures for the abdominal incision. In reply to Dr. Smyly, he said he quite agreed that there were many women who would not wish to be sterilised, and who would wish to have children in the future, but he was quite certain that this particular woman did not want to have future children, nor was it desirable that she should. In reply to Dr. Smith, he said he had Dr. Macan's case at the Rotunda Lying-in Hospital in his mind when he alluded to these dwarfs becoming pregnant a second time. Dr. Colahan was not aware until Dr. Smith mentioned it that in Dr. Macan's case the woman died of rupture of the uterus at the site of the former uterine section. In reply to Dr. More Madden, Dr. Colahan said that, with all respect, he coincided with Mr. Tait's opinion that Porro's operation, if properly done and at the proper time, is a most successful operation and the mortality a mere bagatelle. Dr. Colahan believed that Porro intended that his operation should be for the purpose of saving the mother and child, and should be done on a sound uterus and a viable fœtus. He further believed that Mr. Godson's classification of Porro's operation should be followed in collecting statistics; in this way the true Porro's operation would not be confounded with operations done for a uterine myoma or for removing a child from a ruptured uterus where a fatal result was almost certain. If the true Cæsarean section was mixed up in this way it would soon fall into disrepute. In conclusion, he did not think that it was as yet very intelligible why the tedious processes of suturing the uterus and then sterilising that organ should be preferred to a true Porro's operation.

Dr. W. J. SMYLY read a portion of the Report of the Rotunda Lying-in Hospital for the three years 1889–92. It was proposed and carried unanimously that the report should be printed and copies sent to the members (with the permission of the General Council), and that the discussion should take place at an extra meeting of the Section, the date of which was to be arranged hereafter.

Reviews and Notices of Books.

Diseases of the Skin. By H. RADCLIFFE CROCKER, M.D. Second Edition. London: H. K. Lewis. 1893.

THE first edition of Dr. Radcliffe Crocker's work on "Diseases of the Skin," published in 1888, has been out of print for a considerable time, and the second edition now before us is certain to be warmly welcomed. The fact that the first edition of the work should have been so rapidly exhausted means, of course, that it has supplied a real want and that its worth has been duly appreciated. Dr. Crocker is an acknowledged master of his subject, and those who are acquainted with his painstaking methods and mature experience have not been disappointed in their expectation that such a work from his pen would be well worthy of British dermatology.

As a preliminary to the volume and to refresh his memory, the reader is given a few diagrams and drawings of the minute anatomy of the skin, mostly after Ranvier, and he is referred to ordinary handbooks on anatomy and to Unna's article in Ziemssen's Encyclopædia for a fuller description of the normal histology of the skin. It is questionable, however, whether dermatologists would not have appreciated a more complete account of this branch of the subject, or at any rate an epitome of recent advances in dermal anatomy and physiology, many of which are not yet included in the general text-books. In other respects the new edition is well up to date, and good descrip-

tions are given of a large number of such recently noted affections as "adenoma sebaceum," "Morvan's and Darier's diseases," the epidemic dermatitis which occurred in certain infirmaries in 1891. The author is to be commended for his abundant and faithful references to the work of other observers; but it is, at the same time, manifest that the book is written mainly from Dr. Crocker's own observations and that it is by no means a mere "scissors" compilation.

A thoroughly good and scientific classification of diseases of the skin is doubtless a great desideratum at the present time. Although attempts are constantly being made to supply this want none have been generally accepted as wholly satisfactory, and we cannot say that the author of this book has been more successful in this respect than other writers. He frankly confesses, indeed, that our existing knowledge of the pathogenesis of skin diseases is far too incomplete for a purely pathological classification to be of much real value or, in fact, more than tentative. His guiding principle in selecting a classification has been clinical utility, and with this end in view he has followed, with certain modifications, Hebra's scheme as being the most practical and as being pathologically sound so far as present information goes.

The clinical side of Dr. Crocker's work is probably its strongest one, although it must not be supposed that he has at all inadequately dealt with the pathological or therapeutical aspects of the various diseases he so well describes. Numerous original woodcuts, many of them really excellent, illustrate the minute morbid appearances of a large number of skin affections, and these will be particularly useful to the student. The description of every complaint in the body of the book includes a section on treatment; and a great part of the appendix is taken up with lists of remedies and therapeutic measures. The work, on the whole, will preëminently meet the needs of the practical physician; indeed, we may regard it as being the most comprehensive book on the subject which has yet been published in England.

Essays on Rural Hygiene. By GEORGE VIVIAN POORE, M.D., F.R.C.P. London and New York: Longmans, Green and Co. 1893.

ALTHOUGH eight of the thirteen chapters of which this work is composed have already been given to the world in the form of lectures or addresses, delivered on various occasions, it would have been a great misfortune had not the author conceived the happy idea of weaving them together and, with the addition of five other chapters on kindred subjects, publishing them in a single volume. Although he claims for his book only the modest title of "Essays on Rural Hygiene," many of the subjects discussed are of supreme importance to the town dweller—so important that we hope the work will find a place in every household, for it points out in a clear and practical way how each individual may do his duty, not only to his neighbour, but also for the benefit of the State at large. The work is written by one who is best known as a physician, and who has never assumed a particularly prominent position in the direction of modern sanitation, yet we venture to think that the deductions arrived at, not only by a careful study of recent sanitary methods, but also by that best of all means, the putting into practice of the doctrines advocated, are well worthy of the serious consideration of those into whose hands is committed the control of the public health. After deploring the growing tendency of the population to desert the country and to crowd into cities, Dr. Poore observes that the death-rate of cities is directly proportional to the concentration of population, London and New York being cited as examples, and he points out that in the latter city the death-rate actually exceeds the birth-rate, the growth of population being kept up by the constant arrival of immigrants. The author is inclined to regard the healthiness of London as being more or less a fiction, the high death-rate of London proper being diluted by a low death-rate of certain healthy suburbs; and, moreover, the very important fact is insisted on that London is largely composed of selected adults, there being a very great deficiency of very young and very old lives, and it is also noted that many of those stricken with mortal diseases retire to the country to end their days. He looks with no favourable eye on the growing encouragement which is being given to sanitary authorities to embark in business as purveyors of water, gas, electricity and locomotion; and as their success in business must depend upon the number of their customers he believes that self-interest will induce them to favour overcrowding, and thus to foster those very conditions of unhealthiness which it should be the aim of a sanitary authority to prevent. Dr. Poore is an earnest advocate of the rights and claims of mother earth. The enormous powers of the earth to deal with refuse material, both vegetable and animal, are fully discussed in the well-known chapter on "the living earth"; and he further adduces evidence in favour of the high value of farmyard manure to the land by quoting the experiments of Sir John Lawes and Dr. Gilbert, by which it was demonstrated that the yield of barley from an acre of land manured with farmyard manure was superior to the return from an acre of land dressed with artificial manure, whilst the yield of wheat under similar circumstances was only slightly less under the former than under the latter mode of treatment. It may be, however, that the attention of the modern sanitarian has been somewhat too exclusively directed to disinfectants, precipitants, patent coatings of varnish and other such matters. He revels in schemes in which he can "victual free" on lead soil-pipes, grease traps, intercepting stoneware syphons, galvanised iron cisterns and ventilating shafts, whilst he seems to be perfectly content and happy to let the effluent from the sewers, mixed with street washings, manufacturing refuse and precipitating agents, be turned into and foul the rivers. The modern sanitarian quietly ignores the fact that if what is taken from the earth be not returned to it the land must starve. He forgets that

> ——the old earth smiles
> Spring after spring, and the seed bursts again
> Out of its prison mould, and the dead lives
> Renew themselves, and rise aloft and soar
> And are transformed, clothing themselves with change
> Till the last change be done.

Being an ardent pleader for the earth disposal of excremental matter, the author is naturally severe in his condemnation of the water-carriage system, not only because of the enormous waste of water which it entails, but also on account of its having been a direct cause of the spread of disease. Typhoid fever was not recognised in this country until excrement was mixed with water; and several instances are detailed by the author in which the contamination of water by typhoid sewage produced an epidemic of the disease. One tragic example is described, in which the introduction of the watercloset by a vicar of a country parish into his house, where previously the earth system had been in use, resulted in an outbreak of typhoid fever, to which some of the members of his family succumbed.

Four chapters are devoted to the description of the practical carrying into effect of the author's principles. The garden of a country house was systematically manured with fresh human excrement mixed with earth and buried in the superficial layer of humus, whilst the ground was watered with slop, sink and bath waste water. The result has been an enormous yield of fruit and vegetables and the production of banks of flowers such as Titania might have slept upon. An interesting experiment was made of sinking a shallow well only five feet deep in the garden manured as described above. The sides of the well were made thoroughly water-tight. It was found that such was the purifying effect of the earth that the water from the well was pronounced both by Dr. Frankland and Dr. Kenwood to be organically very pure. Although exhibiting evidence of sewage contamination the nitrogenous matter

was almost completely oxidised, so that the water would have been a safe one for drinking purposes. A chapter is added on the burial of the dead, in which Dr. Poore, true to his principles, advocates burial in the earth and not destruction of the body by cremation; and the book closes with the very instructive story of Bremontier and the universal moral that it points.

Hic et Ubique. By Sir WILLIAM FRASER, Bart., M.A., Christ Church, Oxford, Author of "Words of Wellington" and "Disraeli and his Day." London: Sampson Low, Marston & Co. 1893.

THOSE who have read Sir William Fraser's previous books will have been prepared for an interesting and discursive volume in "Hic et Ubique." It is a very pleasant and refreshing book to take up from time to time—full of notes, reminiscences, anecdotes and the briefest biographical notices. The most important as well as interesting part of the volume, is, perhaps, that which relates to Thackeray. Speaking of Thackeray's funeral, which the author attended, he says that he afterwards walked away with John Leech and talked with him on the balance of human happiness, or rather unhappiness, in which balance he is a believer. The difference of sensibility keeps the scales nearly even. "Leech's death was quickened if not brought about by his sensitiveness to noise. The philosopher Schopenhauer says that a man's intellect may be measured by his endurance of noise; he adds that he never knew a man with a barking dog in his back garden who was not a fool." We do not suppose that the author's information is always reliable, and we do not see how, indeed, reliable information can be obtained in regard to details and observations affecting great men of the past; but there is a sort of vague tradition and general belief in favour of the following. Speaking of Lord Winchester, Sir William Fraser relates that his lordship told him that "his pulse had never been higher than 40 per minute," and added that "the pulse of Napoleon and Alexander the Great were the same. He may, however, have been mistaken as regards the former, for in O'Meara's book the Emperor's pulse is described as 60." At another part Sir William Fraser says that a remarkable historical fact has not been accounted for by physicians: "Julius Cæsar, Wellington, Napoleon and the Archduke Charles of Austria, four of the greatest generals the world has known, were all subject to epileptic fits." Sir William Fraser also gives some interesting information about the first Lord Lytton (Lytton Bulwer) and other men of "light and leading."

LIBRARY TABLE.

Compendium der Pathologischen Anatomie für Studirende und Aerzte. Von Dr. Med. R. LANGERHAUS. (*A Compendium of Pathological Anatomy for Students and Practitioners.* By Dr. R. LANGERHAUS.) Berlin: S. Karger.—This manual of 475 pages, clearly printed and of convenient size as a pocket-book for the student, has been written by an assistant at the Pathological Institute and a *privat-docent* in the University of Berlin. It professes to be largely based upon the teaching of Professor Virchow, to whom it was dedicated by the author on the seventieth birthday of the master. Whilst thus it lays no claim to originality, the work contains a careful *résumé* in condensed form of the science of pathology up to date and the text is usefully elucidated by numerous diagrams. For those who desire in small compass a reliable digest of current pathology Dr. Langerhaus' book will therefore be very useful.

Congrès Français de Chirurgie. Sixième Session, Paris, 1892. Président M. le Professeur Demons. Procès-Verbaux, Mémoires et Discussions publiés sous la Direction de M. le Dr. L. Picqué. Avec 86 Figures dans le Texte. Paris: F. Alcan. 1892.—This is a very interesting and valuable volume. The three special subjects chosen for more detailed and formal discussion at the 1892 Congress were the Pathogeny and Treatment of Surgical Gangrene, the Pathogeny of the Infectious Complications of Urinary Diseases, and the Immediate and Late Results of Operations upon the Biliary Passages. The records of these discussions contained in this volume are an admirable storehouse of facts and of acute suggestions; but the volume contains other excellent material in the more casual contributions of members of the Congress, together with the comments to which they gave rise. The French Surgical Congress is a very vigorous body and this volume of proceedings is an eloquent testimony to its vitality and power.

Clinique Chirurgicale. Par A. RICHET, Professeur de Clinique Chirurgicale à la Faculté de Médecine de Paris, Chirurgien de l'Hôtel Dieu. Paris: J. B. Baillière et Fils. 1893.—This volume has been prepared by M. Blum at the request, and with the help, of M. Ch. Richet. Some of the lectures were reported by students who have given their notes; others were found amongst M. Richet's papers. They are chiefly of interest and value as a reminiscence of M. Richet and will no doubt be highly appreciated by his pupils. They cover a fairly wide range. Disease of the shoulder-joint and fractures of the leg are treated at great length in several successive lectures, whilst single lectures are devoted to certain rare and specially interesting cases.

Our Lord's Miracles of Healing, considered in Relation to Some Modern Objections and to Medical Science. By T. W. BELCHER, D.D., M.D. &c. London and Sydney, Australia: Farran, Okeden and Welsh.—This book does not profess to deal with its subject in a thoroughly exhaustive manner, but is described by its author as a collection of notes. These notes, nevertheless, are somewhat copious and they afford evidence of the employment of considerable care and erudition in their compilation. The argument is moderate in tone and not illiberal, and it shows an acquaintance with medical terms and treatment which encourages the reader to hope for at least a partial solution of those doubts which confront the modern thinker in dealing with the most authentic records of miraculous cure. We must, however, confess to some disappointment in this particular. The author, we consider, accepts too much as proved beyond the reach of controversy. He relies too entirely upon the antique nomenclature of diseases in assigning their character, and other opinions quoted in support of his own are not usually those of the most recent critics. He also uses somewhat undue freedom when describing in modern terms the illnesses enumerated. The chief difficulty, indeed, which besets the whole subject is this. The absence of accurate scientific investigation at the time of these cures has never as yet been made good by subsequent investigation, though we are not hopeless that it still may be. For this purpose, however, a closer scrutiny is required than that here given and there need be no fear but that the truth of Scripture thus questioned without either bias or irreverence will stand the test.

Compendium der Speciellen Chirurgie für Studirende und Aerzte. Von Privat-Docent Dr. G. de RUYTER und Dr. E. KERCHHOFF. (A Compendium of Practical Surgery for Students and Practitioners. By Privat-Docent G. de RUYTER and Dr. E. KERCHHOFF.) Berlin: S. Karger. 1893.—This handy volume is the second portion of a work on Surgery, the first part of which, dealing with general surgery, is said to have been favourably received. The authors, whose position has afforded them ample opportunities for observation, have compressed within little more than 300 clearly printed pages of small size much useful information. To the student refreshing his memory previously to examination the work would prove very useful; to the busy general practitioner desiring a *coup d'œil* of current surgery it is equally suitable; whilst the surgeon *au courant* with advances in his craft naturally requires no such aid, yet for him, also, the succinctness of much of the descriptive matter and the practical nature of all of it cannot fail to be of interest.

THE LANCET.

LONDON: SATURDAY, JULY 22, 1893.

THE action brought by "Dr. EDWIN W. ALABONE, M.D.Pa., U.S.A.," whatever these letters may mean, against a Mr. MORTON was recently brought to a close so far as the purpose of Mr. ALABONE is concerned—and so far, we may add, in his favour. But he can scarcely be much gratified by the light thrown by the trial and by the remarks of the judge on his system and on his methods. The public and the profession have much reason to be thankful to the judge for taking so much pains not to act "blindfoldedly" in this case; and, although he has rather raised than settled some points in it which are of the very greatest public interest, he has raised them so definitely and has expressed such strong suspicions in regard to the part which certain organs of the press have played in this cruel piece of quackery that we must hope confidently to see the real facts exposed and elucidated. The action, as our readers will remember, was brought by Mr. ALABONE for an injunction to restrain the defendant, who had acted as his confidential clerk for fifteen years, from publishing a book entitled "The Prevention and Cure of Consumption, by Dr. MORTON," containing copies or extracts of letters addressed to Mr. ALABONE, and extracts from his case-book and from press notices of his (Mr. ALABONE'S) work, but so altered that they appeared, as reproduced, to refer to the defendant. Our readers will remember the different evidence given on the first day of the trial as to the functions of this interesting young clerk. According to his master's account he was a mere shorthand clerk. According to his own he was as good as his master. He saw patients when necessary, prescribed for them and charged them on his own estimate of what they were able to pay. According to the defendant's version, after the plaintiff was removed from the Medical Register he was afraid of being prosecuted for carrying on the business and proposed to the defendant that it should be carried on in his (the defendant's) name and that if any prosecution were commenced the defendant was to be prosecuted. Thereupon he practically became the general manager of the business and the plaintiff did little else than take the money out of letters in the morning and hand them over to the defendant, who answered them and treated the cases. The defendant moreover said that in the plaintiff's absence he saw the patients and also arranged the fees from one guinea up to five guineas a month. The medicines, too, were compounded by the defendant, and many of the receipts given were his own. We need not dwell on the details of this unwarrantable partnership, or, as the judge suggested, criminal conspiracy. The judge regarded the evidence of both witnesses with much suspicion and took time to consider his judgment and to obtain some light on the authenticity and genuineness of the plaintiff's testimonials and of the press notices. His inquiries, as explained on the 8th inst. in Court, led to no further doubt as to the genuineness of the plaintiff's testimonials, but they "much strengthened his suspicions that the press notices are not what they purport to be and that, whatever may be the value of the plaintiff's method of treatment, it does not depend on lachnanthes"—whatever that may be. Accordingly Mr. Justice WRIGHT gave judgment for the plaintiff for an injunction as prayed, "except as to the press notices, which Mr. COZENS HARDY, on behalf of the plaintiff, waived," and granted the injunction under conditions which it is important to notice. He "assumed that the plaintiff is not debarred by his conduct, or the character of his business, from asking the aid of the Court." This assumption seems to us a very considerable and serious one in the light of the disclosures of this case; and we gather that the judge is of the same opinion. He "makes for the moment" the assumption that the plaintiff is not debarred by his conduct or the character of his business and so grants him a partial injunction. He cannot act on mere suspicion and he has no *judicial* knowledge of facts which could justify him in giving effect to those suspicions, or any judicial means of obtaining such knowledge. We must, of course, recognise the judicial propriety of Mr. Justice WRIGHT'S decision; but it is impossible to be satisfied with the position of the case as he has left it. He, indeed, hands it on for further elucidation to others. Who are the others? Firstly, there are the several organs of the press which were named in the first report of these proceedings. Let us hope that they will either clear themselves from the reflections of the judge or that effective means will be taken to ascertain their share of blame in a business which the judge suggested might possibly be "a cruel and nefarious system of obtaining money under false pretences from persons who are induced to believe themselves consumptive."

As the judge suggested, the question was not one of contract at all. Rather it is one of conduct and of the character of the business carried on. So far, unfortunately, these have not been fully elucidated. It will scarcely be fair to Mr. ALABONE, and it will certainly be unfair to the public, if the grounds for the suspicions of the judge are not investigated till the fullest light is thrown on the character of the plaintiff in respect of his pretensions and of the nature of the business he carries on. For it must be remembered that the judge himself suggests that the practice now carried on by Mr. ALABONE is illegal; and then there is the whole grave business of advertisement and press notices also pointed out for investigation by the judge himself. Mr. ALABONE'S denial that the notices were written by himself was very unsatisfactory, and he admitted that they were corrected for the press by him and inserted in consideration of an advertisement or of the purchase of copies.

In view of such admissions the assumption of the judge that there was nothing in the conduct of the plaintiff or in the character of his business to debar the plaintiff from asking the aid of the Court was not only judicial—it was charitable. Justice itself will appear at a disadvantage if the case is left where it is. As regards the defendant, the need for further investigation is equally pressing. It is bad enough that there should be incurable disease; but it is due to its pitiable victims that the law should deal very severely with those who trade upon their diseases and their ignorance. The defendant had no pretence to medical education, yet he

published a book on the subject; appropriated the title of M.D.; practised medicine in the sense of prescribing and dispensing it as if he was qualified, and with surpassing audacity undertook—according to his own statement—to act as a sort of "cover" to a man who had fallen, by his own fault, out of the ranks of an honourable profession. We cannot believe that the Society of Apothecaries will turn a deaf ear to the suggestions of the judge for further investigation into this matter. Meantime, the public (especially after the Home Secretary's answer to a question on the subject put by Sir CHARLES CAMERON) will draw its own inferences from the judge's remark to counsel that if he said any more in praise of the plaintiff's withdrawing his claim in respect of the press notices he would "feel bound to make some very strong observations on some of the notices in the book."

ALTHOUGH the first two Croonian Lectures, which dealt with the pharmacology of the nitrites and nitrates, contained the results of a large amount of labour and of close experimental research, the third and fourth lectures are, we venture to think, more likely to be of value to busy practitioners, since they deal mainly with therapeutic considerations. Whilst laying due stress upon the various conditions in which the nitrites and nitrates may be of service, Professor LEECH does not hesitate to indicate clearly their limitations, even though he thinks that they are too often discarded through excess of caution. In their favour he points to the small quantities necessary to influence the vascular system, to the relative absence of risk unless employed with suicidal intent and to the evanescent action. After referring to the broadness of the definition of angina pectoris adopted by Sir RICHARD QUAIN, he maintains that according to clinical experience this condition is always associated with a rise in tension, due to temporarily decreased calibre of either systemic or pulmonary vessels, and that the symptoms are the outcome of the heart proving unequal to the work it has to perform. The theory that the relief due to the administration of nitrites is the result of true analgesic action is not supported, the reduction of tension, as originally held by Dr. LAUDER BRUNTON, being maintained as the true explanation. On account of their rapidity of action he prefers the nitrites of the fatty series, which can be employed by inhalation, but he considers that experience has shown that later attacks are of longer duration and that although inhalations are beneficial in earlier attacks they may frequently have to give place to remedies of more prolonged activity, such as nitro-glycerine. Nitrite of amyl, as is well known, is not a stable compound, and it may on that account fail when it is given in solution, although a disappointing result may sometimes be due to the short duration of its period of action or to special insusceptibility of the individual. On the other hand, Professor LEECH records many cases in which it has been found expedient to largely exceed the pharmacopœial dose of the liquor trinitrini, and it is noteworthy that in his experience it is far safer to employ somewhat large doses of nitro-glycerine than to resort to injections of morphine. Ethyl nitrate has scarcely been sufficiently employed in angina pectoris to warrant any very definite conclusions, but it appears to exert a more powerful and more persistent influence in reducing tension than that possessed by ethyl nitrite. Although the nitrates of propyl, isobutyl and isoamyl are as effective as the nitrite of ethyl in lowering tension, they cause so much headache that they have not been employed medicinally. It must not be forgotten that the influence of nitrites and nitrates upon angina pectoris is palliative rather than curative, and that they should therefore be used concurrently with such remedies as iodide of potassium and arsenic.

Paroxysmal cardiac dyspnœa may be relieved by the action of the nitrites on the pulmonary system of vessels as well as on the systemic system, but the ordinary shortness of breath consequent on exertion, which is so frequently met with in simple valvular lesions of the heart, seems to be unaffected by them. On the other hand, Professor LEECH is convinced that some good, and no harm, has resulted from the use of nitrites in cardiac failure or in syncope such as that occurring during the administration of chloroform. Of the value of this group in asthma and bronchitis there can be no doubt, but the *rationale* is not easy to explain. It is possible that asthma is not the result of simple bronchial spasm, but that there may also be, as has been suggested by Sir ANDREW CLARK, some hyperæmia or tumidity of the bronchial mucous membrane, and that the influence on the pulmonary vessels may also relieve the bronchial vessels. Whatever explanation is adopted, testimony is largely in favour of using nitrites in many of those cases which are ordinarily treated with ammonium carbonate and ether. In uræmic dyspnœa and in migraine the results are disappointing, but the converse holds good for the treatment of forms of headache associated with high tension. The value of the series in tetanus, strychnine poisoning and epilepsy is open to considerable doubt, notwithstanding the favourable statements which have previously been made. In the treatment of acute Bright's disease there is also great lack of certainty of the efficacy of the nitrites, although diuresis has appeared to be hastened by the administration of nitro-glycerine or sodium nitrite; headache and other discomforts have been relieved by them, and they certainly have the advantage of causing no ill-effects. Similar difficulties attend the estimation of the results in cases of large white kidney and in mixed forms of chronic nephritis, but in the dyspnœa and cardiac failure of late stages of contracted kidney nitro-glycerine adds to comfort and perhaps tends to prolong life.

Amongst other practical points may be noted the remarks upon the official compounds. On account of the decomposition of nitro glycerine in presence of any salt it is better to employ the tabellæ or else a simple dilution of the liquor trinitrini with distilled water. For subcutaneous injection, in the rare cases where inhalation of amyl nitrite fails, nitro-glycerine is better than sodium nitrite. The benefits of spiritus etheris nitrosi have frequently been challenged, even when the spirit has originally contained its proper proportion of nitrite of ethyl, and this lack of appreciation appears to be largely the result of the rapid decomposition which occurs on mixture with water; hence the valuable recommendation that the dilution should be effected only at the time when this drug is required. It is curious, however, to learn that this decomposition is retarded or prevented when solutions of acetate or citrate of ammonium are mixed with the spirit of nitrous ether. This combination has so long found favour

with practitioners that it is comforting to know that their faith was grounded, even though unconsciously, upon sound scientific foundations.

In the concluding portions of the last lecture Professor LEECH examined the pharmacology of certain groups allied to the nitrites, such as the nitro-group, the nitrosamines, the hyponitrites and the oximes, but his remarks and experiments upon these points have far greater interest for the pharmacologist than for the bulk of the profession. Some of these groups are too nauseous for therapeutic work and others have exhibited marked toxic properties, and upon the whole we feel that they have been investigated rather with a view to throw light upon the method of action of older and simpler compounds than for the sake of perhaps adding to the list of new remedies. On these grounds, therefore, we refrain from summarising the results obtained by Professor LEECH and content ourselves with noting that he has found that the nitro compounds of the fatty series—nitro-methane, nitro-ethane &c.—lower tension for a long time, although not very markedly. From all that has been said it will be gathered that in these lectures Professor LEECH has presented a very ample vindication of the value of pharmacological research. Experiments upon the behaviour of the different groups upon muscle have afforded indications which have not only encouraged or discouraged therapeutic investigations, but have also given rise to very numerous practical observations upon the proper methods of prescribing and employing either the nitrites or their allied compounds.

IN 1844, barely half a century ago, the Lunacy Commissioners placed the number of insane persons ascertained to exist in England and Wales at something over 20,000. On Jan. 1st last, we are told by the Commissioners in their report, of which an abstract is given on another page, that the number under their cognisance was 89,822. This total is an increase of 1974 as compared with Jan. 1st, 1892. This net increase represents an increment of 2·25 per cent. for the year. And yet with all this increased certification and detention of lunatics our police courts give abundant evidence that many persons are allowed to be at large who might with propriety be shut up with a view to their own safety and that of others. Owing to varying circumstances and diversity of conditions, statistics in lunacy matters especially have to be dealt with very broadly and cautiously, and the Commissioners wisely abstain from making deductions from the figures which are freely set forth in their report and the appendices. They nevertheless take some trouble to explain the residual increase during the past year, after allowance has been made in the matter of admissions, recovery-rates and death-rates. Taking place almost entirely, as the Commissioners say, "*among pauper patients living in asylums*," the two most potent influences to which this residual increase is referable are (*a*) the large amount of incurables amongst the admissions and (*b*) the difficulty of obtaining homes for cases of a somewhat more favourable type among the admissions who also do not recover, but so far improve that their continued residence in asylums would not be necessary if homes could be found for them elsewhere.

The boarding-out system, we feel assured, is never likely to obtain in England as it appears to have done in Scotland; and with the satisfactory arrangements now made for the care and supervision of this accumulating class of chronic case in ordinary and district asylums and workhouses we unhesitatingly say that, as regards any large or increasing numbers of the class, we would prefer their comfortable security for life in public institutions to their distribution among families throughout the country upon what must be haphazard lines at a minimum cost and with numerous sorts of risks. Not without much trouble and pains have our streets and villages and country lanes been nearly freed from the unwholesome sights afforded by their mentally afflicted and epileptic occupants; and it would be a great pity if it were sought by any sentimental boom, on a false pecuniary basis, to swing the pendulums of public opinion in an opposite and retrograde direction.

It is satisfactory to hear from the Commissioners themselves of the confidence which the public has learned to place in the management of our lunatic asylums, and this is a point which is now established beyond question; but when they go on to say that this confidence has no doubt conduced to the placing in them of many persons, also incurable, but above the status of paupers, their relatives reimbursing the guardians the cost of their maintenance, we are disposed to ask if this is not proving too much or running some risk of so doing. If our interpretation of this statement is correct, is it not an anomaly that a person who is really above the status of a pauper and the cost of whose maintenance is reimbursed by relatives should be registered as a pauper? And, again, how far is this principle to go and how far are well-to-do people to be allowed to evade their proper pecuniary responsibilities in this direction? We ask these questions because we think the scandalous advantage taken of our ordinary hospital administration by wealthy or comfortably-off applicants for treatment and medicine ought to put us on our guard. Leaving questions of a social and economical character, we are glad to find that the Commissioners are able to speak generally in high terms of the administrative work done in the asylums. The death-rate has been lower if the recovery rate has not been so high as in some previous years. It is not to be forgotten that a speedy and not completed recovery leading to premature discharge is frequently apt to engender a relapse during which much risk is run owing to the relatives trusting too much to what they believe to be complete recovery and not being duly upon their guard.

The deaths by suicide were seventeen in number, and this compares not unfavourably with the records of previous years. On this subject the Commissioners justly refer to the fact that in the last thirty years the more enlightened treatment of insanity has demanded a greater freedom for the patients and a closer approximation in their surroundings to the conditions of home life and of ordinary dwelling-houses, and that these changes have necessitated additional risks. These risks have to be run partly with the view of reducing the irksomeness of asylum life and partly to test the capacity of the individual to adapt himself to his surroundings whatever they may be, and to act sanely upon his own responsibility and without any special supervision. As a proof of the vigilance and care exercised in the present-day *régime*, it appears that, whereas in 1862 the suicides in county and borough asylums were twelve out of a total number f

patients under treatment of 25,799, in 1892 there were fifteen suicides only out of a total of 71,878 patients under care and treatment.

The deaths from misadventure of various kinds or in which the deaths were associated with injury numbered thirty-eight in county and borough asylums; eighteen of these were apparently purely accidental and indicated no want of care on the part of those in charge, and in two of them the injuries were apparently sustained previously to admission. In fifteen instances death resulted from suffocation in epileptic fits; some of these were probably avoidable, but the Commissioners think that in some the relaxation or disregard of necessary precautions contributed to the fatal result.

The Commissioners urge the importance in the general interest of patients of holding post-mortem examinations in as large a proportion of deaths as possible. It would be very conducive to the attainment of this object if a coroner's inquest were held in the case of every death. This we hold to be a great desideratum in all public institutions where individuals are involuntarily detained. It is a course which is in every direction advantageous and reassuring, and, apart from any plea of expense, there can be no substantial objection to it.

Altogether the report of the Commissioners is of a highly favourable character, and when we consider the amount of restless, disorderly and turbulent conduct and the irrationally wild or despairingly desponding mental states that have to be controlled or safe-guarded, soothed or encouraged, we must congratulate the superintendents of our asylums and their colleagues as well as the executive staff in each case on the general immunity from accident, or violence or untoward occurrence that appears to have characterised the year's work, attended as it often is with anxiety and worry.

AT the present season many persons are engaged in the pleasant task of selecting holiday quarters, and the merits and demerits, attractions and drawbacks, of the various sanatoria and watering places are being widely canvassed. The choice very often resolves itself into the decision between some marine and some mountain resort, and we conceive that it may not be unprofitable if we take this opportunity of reminding our readers of some of the salient points of contrast between these two great classes of health resort. Meteorology and climatology have certainly made sufficient advance to justify us in asserting that the choice in question is not one to be made at haphazard, but that trustworthy, if not minutely precise, data exist upon which a scientific selection may be based. Marine and mountain resorts differ decidedly in their meteorological characteristics, in their physiological effects upon the human organism and in their application to states of disease, and it is time that these differences should be recognised as an integral portion of medical science. We shall only attempt to formulate views that would be generally accepted by all practical climatologists, and we shall look chiefly at points of contrast.

Speaking generally and without regard to exceptional cases, sea air is moist whilst mountain air is dry; sea air is heavy whilst mountain air is light; sea air is equable whilst mountain air is subject to sudden oscillations of temperature. Humidity is one of the most constant and characteristic features of sea air; at sea the difference between the wet and dry bulb is usually from 2° to 4° and only exceptionally rises to 6° or 7°. The relative humidity is always high and the point of saturation is frequently reached. On the other hand, mountain air at the elevation at which it has been most carefully studied (from 4000 ft. to 6000 ft.) is very dry and, in the absence of fog, may be as dry as the air of the desert. The heaviness of sea air and the lightness of mountain air are obvious points, depending on elevation. The barometer falls an inch for 1000 ft. of ascent. The equability of sea air and the comparative instability of temperature of mountain air are marked features and possess great practical importance. As regards some points, the relation between sea air and mountain air is one not of contrast but of similarity. Thus both are noted for their purity and both are rich in ozone. The purity of the air of the ocean and of high elevations (in the absence of any special local cause of contamination) is as nearly as possible absolute. Sea air contains a foreign element which can hardly be regarded as a contamination—viz., fine particles of salt water, "sea dust," blown about and forming an appreciable element in the air of respiration. The amount of cloud—a very important factor for the individual—varies much both at sea and in the mountains. Cloud is the rule at sea and there are many mountainous regions which are usually cloud-begirt, but some elevated spots enjoy an immunity from cloud and a consequent permanence of sunshine which no marine resort can rival.

Turning to the physiological action of sea air and mountain air, we may say that both are tonic—i.e., both tend to heighten vitality and to improve nutrition; whilst mountain air is always stimulant, sea air is either stimulant or sedative—i.e., mountain air excites the nervous system, whilst sea air may either excite or soothe it, according to circumstances which we shall indicate presently. The tonic effect of sea air and mountain air depends probably upon their purity and richness in ozone. The stimulant action of mountain air may be explained by its lightness and rarefaction and to a large degree also by its purity, richness in ozone and by the high average of sunshine which prevails at many mountain resorts. Sea air may be stimulant or sedative according to the nature of the local shelter and the character of the prevailing winds. If the situation be open and the prevailing winds moderately cool and dry sea air will be stimulant. It will be sedative when the conditions are of an opposite nature.

Let us, in conclusion, indicate in a very general way the practical applications of these various points. Sea air and mountain air, both being tonic, will probably improve the health that is already fairly good. Children almost invariably do well at the seaside, whilst mountain resorts are in general much less suitable for them. The same rule applies, though for different reasons, to the aged. Dyspepsia, especially if of hepatic origin, often does badly at the seaside but well in the mountains. Skin diseases, especially eczema, are often aggravated by sea air. It is not clear that mountain air has any effect upon them. Struma in all its protean shapes does notably better at the seaside than anywhere else. The bracing marine resorts should usually be chosen. The existence

of rheumatism, cardiac disease or renal disease is usually a sufficient reason for placing a veto on the mountains. Bronchitis and emphysema do badly in the mountains, but often well at the more sheltered marine resorts. Obstinate insomnia is a contra-indication against both sea and mountain resorts and calls usually for the sheltered inland resorts; milder degrees of insomnia, however, are often much benefited both at the sea-side and amongst the mountains. Hysteria does very badly in the mountains and often not well at the seaside. Here, again, if any change be desired, the sheltered and moderately bracing inland resorts will probably be found to be most suitable. Incipient phthisis often does well both at the seaside and amongst the mountains, and it is one of the most difficult points in therapeutics to choose wisely between the two. Without entering into this obscure question fully we may safely say that if the phthisis be at all of a "strumous" type sea air will be found most suitable; if of "catarrhal" origin the moist and sedative marine resorts should be tried; and if quiescent and limited, in a constitution that is not neurotic, the mountains may have the first trial.

The above rules are somewhat dogmatic and precise and would require modification and qualification if we were attempting to discuss these questions adequately; but put in this bald way they may afford practical help in cases where help is required. Purity of air and abundance of sunlight are often our two chief desiderata, and these may frequently be found both at the seaside and in the mountains; but we cannot ignore the other factors in the problem without injury to our patients. Finally, it may not be superfluous to say that in a doubtful case the patient's previous experience will often be found to be of great value.

Annotations.

"Ne quid nimis."

THE SANITATION OF CHICAGO.

WHEN, on April 8th last, we placed before our readers a report of our investigation into the water-supply and sewerage systems of the city of Chicago we had the benefit of our own people chiefly in view, but it seems probable that in the end the citizens of the Garden City rather than their visitors will profit by the attention which has been directed to these matters. We pointed out at that time that the southern, or Sixty-eighth-street, pumping station was, next to the central system, that which would most nearly concern visitors to the city, inasmuch as it would furnish the entire supply of water provided for ordinary purposes within the Jackson Park and the immediate neighbourhood of the World's Fair. It was, therefore, a matter of some concern that the intake for this pumping station should be placed at no greater distance than one mile from the shore, and from a part of the shore which is peculiarly exposed to the invasion of sewage matters brought down by the Calumet River and the Lake Shore sewer outfalls. The point was one that had not escaped the authorities, and in the communication which the Mayor of Chicago made to us it was stated that steps had been taken to remedy this defect, that the extension of the water tunnel to a point two miles from the shore was actually in hand, and that the "City" expected to pump water from the more distant intake by the 1st of the present month. We greatly regret now to learn from newspapers just received that this expectation cannot be realised. The Chicago *Tribune* of the 22nd ult. says with reference to this matter:—

"Though the Hyde Park extension tunnel is practically completed it cannot be utilised until the close of the World's Fair in November. This is the opinion of Engineer Artingstall. To utilise the extension it has to be connected with the old 6000 ft. tunnel from the Sixty-eighth-street pumping works. To make the connexion would necessitate the temporary closing of the one-mile submerged crib and the drawing of water from the Hyde Park shore intake for World's Fair uses. That would make it a hazardous experiment. The water at the shore intake is not in good condition. It is muddy and contains much sewage. It would take a week, perhaps more, to connect the mile of new tunnel with the mile of old tunnel at the submerged crib. Mr. Artingstall protests that it would be a most dangerous policy to use the water from the intake during the week it would take to make the connexion. It is likely that there will be no connexion therefore until November. The water from the Hyde Park mile tunnel is fairly good now. It is suggested that it might be improved, however. The use of filters is considered by the engineers to be advisable under the circumstances. The city is now constructing a new five-foot tunnel from the shore to the new extension. This will be finished about sixty days from date. Hyde Parkers may then have water from a two-mile crib to as great an extent as five-foot tunnel capacity will permit. The city engineer is in favour of making the extensions of all the tunnels four miles into the lake. The difficulty is the lack of funds. Much money will be required to lay the necessary pipes for extensions and supply in the north-west section of the city and the controller has not yet disposed of all the recently issued water bonds. In many parts of the city there are complaints as to the inadequacy of the water-supply. The inadequacy of the supply is due to the inadequacy of the pipes. Eight- and twelve-inch mains will not supply thickly populated districts with sufficient water. The mains in Lake View and Lake *(sic)* laid during past administrations are all of the six-inch, eight-inch and twelve-inch order. They are insufficient. Hence the complaints. The remedy is to lay new and larger mains, but the city has not the money to do that. The city engineer says the Bridgeport pumps are being worked to their fullest capacity now. They are sending 50,000 cubic feet of water down the canal. But that is not sufficient. It appears that the new Courtright pump is not working satisfactorily. It has broken down two or three times. However, the river water is being changed nearly every day and the rains of Tuesday did no harm. It was to be expected that the warm weather would make fermentation; but there are no bad effects to be feared."

This is an extremely unsatisfactory state of affairs and we hope that the filters, to which a somewhat obscure allusion is here made, will be set to work with the least possible delay. Indeed, it is not easy to see how, on any assumption, it would be possible to have a filtering plant in operation before the close of the Exhibition if the desirability of using filters is only now under discussion. It was announced about the time that the Exhibition opened that there would be a supply of filtered lake-water, provided at some 200 fountains within the grounds. It may, therefore, be presumed that the city authorities are more advanced with their preparations than this latest announcement would seem to indicate, and we sincerely hope for the interest of all concerned that it is so. In the meantime it is satisfactory to observe that, although there are loud complaints as to the pestilential condition of the Chicago River, there are at present no indications of actual mischief to the public health. The report for the month of May published by the Health Department shows less typhoid fever than in the corresponding month of the past three years and the whole death-rate is under 18·5 per 1000 per annum. The Chicago people have thus obtained a very good start, but we greatly fear that they are endangering the continuance of their good fortune by some remissness in reference to sanitary arrangements of capital importance at the present time.

GUY'S HOSPITAL.

MONDAY was a high day at Guy's Hospital. The President, Mr. H. Hucks Gibbs, entertained a numerous company at lunch on the occasion of the opening of new laboratories and a new dental school. The chief speaker was Sir John Lubbock, who spoke with much praise of Guy's Hospital as one "of those great institutions of which London is justly proud." He eulogised the new laboratories, fitted up with all modern requirements and ample space for years to come. Guy's Hospital, he said, was the first of the great hospitals to establish a complete dental school. Both the laboratories and the dental school were, he considered, "worthy of Guy's." It is gratifying to read that 25 per cent. of the students are endeavouring to become qualified medical practitioners. This is the true way of qualifying for dentistry, as for any other branch of practice, and we must look to practitioners so trained to raise dentistry out of all narrowness of view and all low methods of practice. Our great hospitals have so to equip their special departments as to leave special hospitals without a *raison d'être*. Sir John Lubbock also delivered the prizes in a marquee erected in the courtyard. After so doing he delivered a brief address, in which he developed his views on Medicine. The profession will appreciate his estimate of Medicine as that of a highly competent and impartial critic. Sir John Lubbock is a many-sided man. He speaks with originality and power on the uses of Chambers of Commerce, on the pleasures of scientific pursuits, on the science of banking, and on the objects of Medicine and the qualities which constitute a true medical man. The students of Guy's Hospital were privileged to hear their calling so well described. Sir John Lubbock pointed out that it was not merely technical knowledge of means for relieving pain that was expected of a medical man, but "tact and sympathy, and, above all, character." It was on account of the possession of these qualities that the profession stood so high, and never more so than at the present time. This is the true note to have struck on such an occasion. The students of Guy's Hospital have a great inheritance of character and of fame; they have been favoured, too, of late years in hearing statesmen of the first rank discourse on their profession and school. We shall expect corresponding results.

A NEEDLESS EXHUMATION.

THE exhumation of a body is for more than one reason a matter to be undertaken only of necessity and with due regard for the limitations imposed upon it by law and experience. To reopen a grave is to break the seal of a domestic sorrow. Further, it has another and more directly practical significance, for the living may not breathe with impunity the atmosphere tainted by unearthed putrefaction and perhaps disease. It is decent and wholesome therefore that all work of this kind should be done in accordance with an accepted order. In a recent instance which occurred nothing was more apparent than the absence of this primary condition. The facts as published are the following: a child's body, after due certification, which was accepted by the registrar, was buried, the parents consenting, and the cause of death being allowed to be natural—viz., a convulsion during teething. Five days later it was exhumed by order of the police and was examined by the coroner. The above facts having been certified, a question naturally arose as to the reason for disinterment. None was forthcoming, unless we accept as such an "impression" on the part of the police (unfounded, as we have shown) that the certificate of death was irregular. Such undue assumption of authority was rightly and very strongly censured by the coroner and his jury, who will be supported, we are sure, by all sensible persons in seeking to restrain a zeal so little in accordance with knowledge. We would be the last to minimise the difficulties in obtaining evidence which police officers have to encounter or to deny the occasional expediency of summary methods in seeking it. In the case above mentioned, however, there seems to have been absolutely no reason or excuse for such summary proceedings. A mere rumour would seem to have furnished a clue, and this to have been treated as valid proof of an offence without further inquiry and with the result already stated. It is to be hoped that the experience gained in this instance will serve to prevent the repetition of so discreditable an error.

CHARGE OF MANSLAUGHTER AGAINST A BUTCHER.

ON Wednesday, July 12th, a charge of manslaughter was preferred against Alfred Deards, butcher, residing at Burry Port, near Llanelly, for selling brawn the consumption of which resulted in the death of Rachel Williams and David Evans and the illness of several other persons. In order to substantiate the charge of manslaughter Mr. Justice Charles, before whom the case was tried, pointed out to the jury that sufficient evidence must be forthcoming to show that Deards had been guilty of culpable negligence in the preparation of the brawn. Mr. Owen Williams, of Burry Port, deposed as to the patients' symptoms during life, which were those of irritant poisoning, and the results of the post-mortem examination. Mr. Morgan, public analyst, living at Swansea, who examined the brawn and viscera, stated that he had found ptomaines in the brawn, and similar substances in the viscera, but no vegetable or mineral poison in either. A considerable quantity of pepper had been added to the brawn with, it was suggested, the intention of delaying putrefaction in meat which was already decomposing when cooked. Mr. Morgan stated that he could not conceive that ptomaines could exist in poisonous quantities in meat without exciting suspicion. Dr. Thomas Stevenson, lecturer on forensic medicine at Guy's Hospital, agreed that death was due to irritant poisoning; but whilst giving it as his opinion that the presence of poisonous ptomaines in uncooked meat might attract attention, said he could not extend the statement to cooked meat. The accused was acquitted.

TREASURE-TROVE FOR THE HISTORY OF MEDICINE.

WE have on more than one occasion suggested that a vast field of medico-historical research exists in Oriental, and more especially in Chinese, territory, and we have now to record an important "find" in confirmation of our surmise. This time it is the region beyond our Cashmere frontier—the hill country between Chinese Leh and Yarkand—that has been laid under contribution, and the treasure-trove in question is due to the sagacious inquiries of a Moravian medical missionary, Mr. Weber, whose station is Leh. He received it from an Afghan coadjutor—a past master in such investigations—and it consists of a series of manuscripts dating from the seventh century A.D., and dealing with medicine and its traditionally allied subjects of astronomy and witchcraft. The documents were handed by Mr. Weber to Dr. Hœrnle of the Bengal Asiatic Society, whose well-known skill in Oriental palæography at once recognised their tenour, as also the *matériel* on which they were written. This latter is identical with the paper still used by the Himalayan tribes, being composed of the same vegetable fibres and not of the birch bark employed for the writings brought to England by Captain Bowen. Dr. Hœrnle ascribes the good preservation of the manuscripts first to the dryness of the surrounding air and next to their having been "sized" with white arsenic. He gives a translation of one of the spells for inducing fever, presumably as a punishment or in revenge—a spell eminently characteristic of its Chinese origin, and interesting not only

to the medical historian but also to the student of popular superstitions. Such treasure-trove has another value—that of indicating the quarter in which manuscripts of more purely professional interest may be found, and of encouraging special investigation *ad hoc*. We may thus obtain, in time, the materials for a more systematic and coherent digest of the healing art in Central Asia than its pharmacopœia—portentous in character as in bulk—has hitherto enabled us to form.

THE DRESDEN CONVENTION.

WE are informed that the British Government have now formally given in their adhesion to the Convention which was come to at the International Sanitary Conference at Dresden, subject to a definite reserve to the effect that the system of "observation" to which healthy people arriving on board infected vessels are to be put will in England be limited to the medical supervision *à domicile* which has long been in operation in this country. Having been invested with the necessary plenary powers the document was signed in London last week by Dr. Thorne Thorne, C.B., and Mr. Farnall, C.M.G., and later at Berlin by Mr. G. Strachey, Her Majesty's Minister Resident at the Court of Saxony. We draw detailed attention to the Convention on page 214.

THE INSPECTION OF TEETH IN SWISS SCHOOLS.

"A TOOTH is worth more than a diamond," said Don Quixote on a memorable occasion; but the profound physiological truth of the saying has but small practical force even in the nineteenth century. Switzerland holds a bad pre-eminence in the abuse of this precious auxiliary to digestion; indeed, dentists, British or American, who practise in her chief towns are unanimous in declaring that nowhere is neglect of the teeth, with all its disastrous and (on the side of personal comeliness) hideous consequences, so conspicuous. Not a day too soon the Société Odontologique of Geneva, in concert with the Minister of Public Instruction, has made a series of visits to the primary schools with the view of examining the teeth of the pupils. Their report, just issued, is fraught with striking revelations, not without relevance, we are afraid, to the same class of schools in other countries. Teeth all the world over, they assert, are degenerating—a result (amongst other causes) of the perfection of the culinary art and the diminished use of mastication. We can, however, minimise this inevitable process and by timely precautions guard against tooth-enfeeblement and caries. Every six months the mouths of children seven years old should be examined by the dentist, for at that age the "eventual points of caries" can be treated in time. Later, at the age of ten or twelve, the mischief is already advanced, but not so far as to be quite beyond professional relief. The Société Odontologique of Geneva philanthropically makes these inspections gratuitously in the case of primary schools containing that portion of the young generation which is less favourably circumstanced for calling in the dentist. The *modus operandi* of the Society is this: On visiting a school its representative addresses his young audience in popular language on the genesis, the growth, the uses and the ailments of the tooth and winds up with a practical demonstration of how much may be done to keep it strong and healthy. The first place in this conservative duty he assigns to "attending to the mouth"—keeping it clean by washing it and washing the teeth after every meal. The widespread neglect in practising this precaution the Société proves by statistics: Out of 413 boys inspected, 370 (that is, 90 per cent.) never brushed their teeth at all; out of 459 girls, 320 (or 70 per cent.) were equally neglectful; whilst in nearly all of them caries was already declared or far advanced—more than 75 per cent. of these young persons requiring the urgent interference of the dentist. After his visit the Société's delegate draws up a "schema" or dental plan indicating in each case the state of the child's mouth, the teeth to be specially protected and the general treatment to be adopted. This "schema" is sent to the child's parents, who are thus instructed as to what has to be done. In these instructions the Société insists on careful brushing of the teeth from the age of seven and upwards as the best means of averting caries, which is so injurious to the general health. "Recent observations," adds the Société's report, "demonstrate in neglected mouths the presence of the majority of the germs or microbes which generate infective maladies. Cleansing the mouth, therefore, is a duty imposed on the community from every point of view." All honour to the Société for its philanthropic work, which, as already hinted, might with advantage be imitated elsewhere.

OPERATION FOR MICROCEPHALUS.

IN the *Glasgow Medical Journal* for June Dr. Barlow of Glasgow records the case of a child who, at the time she first came under notice, was two years and two months of age. Advice was sought on account of the inability of the child to walk or talk. The anterior fontanelle had never been noticed and was certainly non-existent when the child came under observation. During the first year of life she was drowsy and she had never shown the slightest interest in anything or recognised anybody. In her habits she was very dirty. The head was small and the face appeared to be relatively large. The operation of linear craniectomy was carried out successfully, and four months after the operation there was slight but evident improvement, the patient being able to walk, although with some uncertainty. Talking was still impossible, but she could indicate by sound that she wanted food. She could also recognise certain people. The second operation was carried out on May 6th, and we hope at some future time to be able to publish a further report of the case.

A DEATH UNDER CHLOROFORM.

A BARGEMAN aged thirty-seven was admitted to the West Ham Hospital on Wednesday, July 5th, with two fair-sized sebaceous cysts on the point of the chin. On Friday, the 7th, at about 5.45 P.M., he was taken to the operating theatre to have them removed. The patient was a muscular, well-made man, who said he had "never had a day's illness in his life." He was himself very anxious to have the operation performed. When on the table his heart was examined and no lesion was found, although the heart's action did not appear to be as strong as might have been supposed. The anæsthetic chosen was pure chloroform. This choice was made because the mouthpiece of an inhaler for any other anæsthetic would interfere with the operation on account of its situation. The chloroform was given from a drop-bottle on lint, with free admixture of air. The early stages of anæsthesia appeared to be quite normal, the patient breathing well and comfortably and the pulse being well maintained. There was some struggling, but not more than usual. The time taken to reach the stage of complete anæsthesia was thought (afterwards) to be about ten minutes. The amount given was from three drachms to half an ounce. On complete corneal insensibility and muscular flaccidity being obtained the first incision was made. Almost immediately afterwards the patient ceased to breathe and became greatly cyanosed. The mouth was well opened and the tongue drawn forwards with forceps. Twenty minims of brandy were twice injected hypodermically over the cardiac region, the legs were raised, artificial respiration was commenced and on account of the extreme congestion three minims of nitrite of amyl were held to the nose and mouth. After about thirty seconds the patient recommenced to breathe and his feet were accordingly lowered again. The artificial

respiration was at the same time discontinued. He then gave about six normal respirations and again ceased to breathe. The cyanosis all this time remained the same. After the second stoppage of respiration nothing seemed to have the slightest effect. Several more injections of brandy and also of ether were given; artificial respiration, the interrupted galvanic current, raising the legs, complete inversion and nitrite of amyl—all these were tried. but without success, the artificial respiration being continued for over half an hour. An inquest was held on Monday, July 10th, when a verdict of "Accidental death" was returned. The coroner said he "did not consider that a post-mortem was necessary," so that an examination of the heart could not be made.

SMALL-POX IN SCOTLAND.

SMALL-POX has almost disappeared in Scotland. There have been no fresh cases in Glasgow for a week or two and only five remain in hospital. The Montrose outbreak is reported on by Dr. Lawrence. It consisted of eighteen cases and the medical officer of health traces all of them, directly or indirectly, to working amongst flax imported from Russia. A similar genesis is alleged with regard to an outbreak that occurred in the town seven years ago, and the natural advice is that employers should accept the services only of revaccinated workers. This receives local emphasis from the facts that in the course of the outbreak no revaccinated person was attacked, though the revaccinations were numerous, and that the only death occurred in an unvaccinated adult.

THE ADVANCES MADE IN CHEMICAL INDUSTRIES.

THE address delivered by the new President (Sir John Evans, F.R.S.) before the members of the Society of Chemical Industry on the occasion of their annual meeting at Liverpool on the 12th inst. embodied an interesting history of the progress that has taken place in chemical industry and science during the last half-century. After referring to the enormous impetus given to the iron trade by the introduction of the Bessemer furnace, Sir John Evans drew the attention of his hearers, as if by contrast, to the interesting experiments of Professor Dewar under conditions of extreme cold. Most substances when subjected to these conditions are, he said, so to speak, dead and their ordinary affinities are in abeyance. Thus sodium or potassium actually floated on liquid oxygen without evincing the least disposition to combine. "Glacial chemistry" will probably compel us, therefore, to modify our views as to the properties of matter. The future for gas derived from coal, the President thought, was as a source of power rather than as a direct illuminant; as for electricity, the field for its application appeared to be as broad now as ever it was. Its economical production was one of the most pressing problems of the day. Reviewing the extraordinary progress that had been made in organic chemistry, Sir John Evans instanced the discovery of mauve by Perkin, which was so quickly followed by an abundant harvest of artificial colours. Not only colouring matters but flavours and scents have been produced in the chemical laboratory, though art, the President remarked, if superseding nature for a time, must eventually acknowledge her inferiority, even in "pear-drops." The production of sugar was another illustration of the progress in chemical industry. Owing to the improvement in the methods of growing the beet and the process of manufacture nearly twice the weight of sugar is produced from the root than was the case fifty years ago. Sugar naturally led to the subject of fermentation, and it was the study of fermentation, more particularly the action of yeast on sugar, that led to the elaboration of another and vitally important field of science—bacteriology. The deterrent influence of light on the growth and life of organisms, as illustrated in Professor Marshall Ward's experiments, was mentioned in this connexion. From organisms Sir John Evans brought his hearers face to face with a problem which the chemist has failed satisfactorily to solve—not the disposal but the utilisation of sewage. Though many chemists had designed processes which were effectual in decently and economically disposing of sewage, yet the utilisation of sewage as a fertiliser has not been brought to a successful or satisfactory issue. Sir John Evans could hardly refer to this subject without giving a word of praise to the excellent services rendered to agriculture by Sir John B. Lawes and Dr. Gilbert, and it was with these words of tribute that he concluded his interesting address. Professor J. Emerson Reynolds, ex-president, moved, and Professor Campbell Brown seconded, a vote of thanks to the President for his address, a proceeding of which the members present unanimously approved.

MEDICAL AID FOR INDIAN WOMEN.

WE are once more favoured with an opportunity of bringing under the notice of our readers the movement inaugurated seven years ago by Lady Dufferin for the purpose of providing skilled female medical aid for Indian women. Two years ago we directed attention to the progress made by this well-directed enterprise. In 1891 the number of persons relieved through its agency was 411,000, and the number of female native Indian students in training in the medical schools was 204. Last year's report marks a further advance. The annual register of patients has increased to 466,000 and the student roll to 222. We have to note, moreover, that local organisations connected with the parent society in Calcutta have sprung up to the number of 131 throughout the provinces of India, from Beloochistan to Burmah and Tinnevelly. An important branch established in London to represent the United Kingdom held its annual meeting a few days ago at the residence of Lord Brassey. On that occasion the income of the society in India was stated to be about £3500, the investments representing about £116,828. These are figures which attest not only the growing esteem with which the operations of this useful association are regarded by its well-wishers amongst the European population, but, what is even more important, its appreciation by the far more numerous body of sufferers whom it seeks to relieve. We are all aware of the difficulties interposed between the benevolent skill afforded by Western science and Oriental necessity by religious and social exclusiveness. We must all regret that such difficulties exist, but we must also all the more because of their existence endeavour so to administer to our suffering fellow subjects in India that aid which they require as to ensure its acceptance. We have already shown that Lady Dufferin's scheme is achieving year by year an increasing success in this direction, and we can therefore confidently commend its efforts to the practical support which many in this country will, we feel sure, be able and ready to render.

SPINAL CORD CHANGES IN PERNICIOUS ANÆMIA.

WE referred in a recent number of THE LANCET to observations originally made by Dr. Lichtheim on changes occurring in the spinal cord in association with pernicious anæmia and to the more exhaustive work by Dr. Minnich, which was in reality a continuation of that commenced by Dr. Lichtheim. In a recent number of the *Neurologisches Centralblatt* there is a *résumé* of an article from the *Zeitschrift für Klinische Medicin* by Dr. Minnich in continuation, or rather in extension, of his former work. In this paper are detailed the observations made on five cases of pernicious anæmia, which during life presented no symptoms pointing to spinal cord affection. It was hoped that early changes might be found in the cord to indicate the manner in which the affection began and its possible cause; but this hope was scarcely realised. Two distinct groups of changes were found. The first consisted of capillary hæmorrhages,

similar to those occurring simultaneously in the retinæ, with their consequences—viz., patches of miliary sclerosis. These were particularly noticed in hardened preparations. The second group of changes was only noticed after hardening, the fresh cords presenting no other appearance than was to be expected in cases of extreme anæmia. In the hardened specimens this change consisted in a strong, bright colouration of the posterior columns of the cord in its entire length, not unlike the ordinary posterior sclerosis of tabes, but without any shrinking. There was also visible at the peripheral parts of the anterior and lateral columns a somewhat diffuse bright-yellow colour. The cord substance was very brittle, the effect of a process of softening affecting the grey as well as the white matter, but especially the posterior columns Exactly similar changes were found in a case of leucæmia and in one of tumour of the inferior vermis of the cerebellum—i.e., in cases of long-continued illness which had much reduced the patients. The microscopical appearances were very similar to those found in true spinal cord affections, but the changes evidently depended on a condition of œdema of the cord. The writer considers it not impossible that the dropsical changes originating in the course of severe illnesses may really be the starting point of a true degenerative disease of the spinal cord.

THE INTERNATIONAL MEDICAL CONGRESS.

FROM Rome, under date the 17th inst., our own correspondent writes:—"There can now be no doubt that in point of numbers alone, to say nothing of the importance of the monographs which were announced in my last communication as being expected from such *dii majorum gentium* of medicine as Virchow, Charcot and Nothnagel, the coming Congress will be superior to the most-frequented of its ten predecessors. In the first place, take Italy herself. There are about 20,000 possessors of medical diplomas in the peninsula, and of these it is safe to assume that no fewer than one-fourth will make an appearance at the Sections. To these 5000 Italian medical men may safely be added the 3000 practitioners and teachers of other nationalities who are already pledged to come, to say nothing of the fact that 'adesioni' to the number of 3000 more are all but committed to be present. Allowing for abstentions and 'false starts' due to unforeseen causes, which affect no profession more than the medical, we may deduct 1000 from the 11,000 thus compiled, and the balance of 10,000 'Congressisti' remains—a total exceeding by more than 4000 the attendance at the Berlin Congress in 1890. It is, I find, from Germany that the majority of the foreign participants at the sittings will come. Certainly there is nothing of that international jealousy between Italy and the two other members of the Triple Alliance that caused the French representatives to be 'conspicuous by their absence' at the Berlin Congress. America also, both from her northern and southern divisions, will send many delegates—the physicians and surgeons of the United States especially. These latter, I understand, have already engaged a first-class steamer to take them first to Liverpool and thence, without touching at any intermediate port, to Cività Vecchia, from which place an hour and a half's journey by rail will bring them to Rome. The International Exhibition, as I have from time to time indicated, will form a feature of the approaching Congress that has been unexampled by any hitherto held at medico-chirurgical meetings. In addition to the ten classes of 'exhibits' and the supplementary class devoted to hydrology and 'balneoterapia,' already enumerated, the 'Croce Rossa Italiana' will be exceptionally rich in its show of *matériel*—so rich, in fact, that the Palazzo delle Belle Arti, in which the above-named classes will be accommodated, will afford no room for the wealth of appliances and other gear constituting the armamentarium of a fully equipped ambulance service. In consequence, a special building—the 'Eldorado,' which is contiguous to the Palazzo delle Belle Arti—has been set apart for the Italian Red Cross Society—an arrangement all the more necessary on account of the fact that the great proportion of the 'exhibits' are sent in 'for competition' and the umpires must therefore have space and 'detachment' enough to test each of the competing systems separately so as to arrive at an adequate appreciation of their several merits before adjudging the medal or diploma to be awarded to the 'best' and the 'second best.' Over and above this distinctively competitive exhibition there will be a subordinate or supplementary one, consisting of 'exhibits outside competition' (*fuori concorso*)—exhibits placed on view by foreign Governments. Germany is particularly rich in these latter; whilst the various societies of 'Assistance Publique' throughout Europe, including that of the Knights of Malta, will be strongly represented. The whole exposition, in fact, will do infinite honour to its accomplished and indefatigable organiser, Professor Luigi Pagliani of Turin, Director of the School of Hygiene and Sanitary Officer *en chef* to the Ministry of the Interior; and it will establish a precedent to be followed, it is anticipated, by future Congresses, whose appointments, indeed, will henceforth be reckoned incomplete without a concurrent exhibition of the kind. It may be well to remind your readers who may wish, whilst profiting by the various discussions in the Sections, to take full advantage of the unique opportunities afforded by the 'Esposizione,' that the latter will be open from Sept. 15th to Oct. 15th—that is, a full week before and a full fortnight after the rising of the Congress."

THE MANUFACTURE OF OZONE.

OZONE has always afforded an interesting subject both for popular speculation and scientific investigation, and it is only a month ago that the exact conditions were ascertained by which a maximum yield of this interesting body could be obtained. We refer to the interesting studies of Professors W. A. Shenstone and W. Priest, a short notice of which appeared in an article on the Royal Society conversazione in THE LANCET of June 10th. It is now reported that ozone has been successfully prepared on a commercial scale, so that we may expect to deal with it as an everyday commodity. By adopting a special form of apparatus, in which many of the delicate bearings of the almost familiar and historic ozone generator of Siemens and Brodie are dispensed with, M. Andreoli has succeeded in converting in his apparatus oxygen into ozone to the extent of 6 per cent. In the Andreoli apparatus advantage is taken, it appears, of the well-known tendency of electricity to flow away from points, and it is between these points, under an enormous tension, that oxygen or air is allowed to flow. Part of the oxygen is thus condensed into ozone. The yield of ozone, however, in no way compares with the results of Professor Shenstone's experiments, who obtained as much as 30 per cent. of ozone, an amount that exceeded all existing records and which has not since been surpassed. Even were ozone to be produced in a tolerable state of purity we cannot see how it would become available for the many purposes for which it is supposed to be so valuable, besides which, there is the question of its storage. Ozone, under ordinary conditions, is a gas which is probably more difficult to preserve than any other known gas. Apart from its tendency under the slightest provocation to "explode back" into ordinary oxygen, its extraordinary power of diffusing through many substances is a difficulty that must be reckoned with. As an illustration of this property may be mentioned the fact that it passes through comparatively stout rubber tubing as though it were wire gauze. Then, again, ozone in quantity is decidedly poisonous, whilst its presence in the air to any extent produces irritation of the mucous membrane. Ozonisers for the production of ozone in a room may perhaps be used with advan-

tage for disinfecting purposes, for it cannot be disputed that it is a powerful oxidising body although, oddly enough, under some conditions it may actually effect a reducing action. The normal presence of ozone in the air is still a disputed point, for the simple reason that the tests which have been looked upon as sure indications of its existence are known to respond to other things which occasionally occur in the atmosphere. Such are, for example, nitrous acid, chlorine, and perhaps peroxide of hydrogen. Ozone has been employed, it is also stated, for the rapid production of mellow spirits and especially of whisky; but it is not unreasonable to expect that, if oxidation of the raw products and the higher alcohols of spirits is easily accomplished by this means, oxidation of ordinary alcohol to acetic acid would also ensue. If this were the case the flavour that is characteristic of a normal mellowed spirit would be materially and unfavourably affected. The experiments on the commercial production of ozone have been carried on at Messrs. Allen and Hanburys' works in Bethnal-green, and, however successful they may have been, we have yet to learn what benefits are likely to be derived from ozone purchasable in pints or pounds.

NERVOUS LESIONS IN LEPROSY.

DRS. H. HALLOPEAU and JEANSELME have made some important observations on the multiple lesions affecting the peripheral nerves in leprosy.[1] These lesions give rise to various forms of paralysis, anæsthesiæ, and to some amyotrophic conditions, which are especially remarkable both as regards their distribution and general character. It was chiefly in the limbs that these symptoms attained their maximum intensity; the extensors of the feet were especially affected and wasted rapidly. As regards the face, complete paralysis of the right facial nerve occurred within a few days, all the muscles supplied by it being affected; the right orbicularis muscle was implicated on each side, so that the eye could not be properly closed. Sensibility was abolished in the limbs in the regions around the elbows and knees and it was perverted in the arms and thighs; thus, the contact of a cold body produced the sensation of a hot one being applied. It was the same over the forehead. The nerves which supplied parts which had wasted had considerably increased in size. This was the second communication which Drs. H. Hallopeau and Jeanselme had made on the same subject.

A HOSPITAL MISTAKE.

WE have unfortunately to record a mistake in diagnosis recently made at one of our large hospitals in that class of case of injury to the head in which the symptoms so closely resemble those of drunkenness. On Monday, the 3rd inst., a man aged forty-five was taken to St. Thomas's Hospital, suffering from the effects of a fall into an area, the result of working on an insecurely fixed board, which had given way with him. He was found to have sustained a scalp wound on the right side of the back of the head, a large cut on the right ear and a small wound on a finger of the right hand. He was in a semi-conscious condition, but was quite able to speak and answered questions in a very indistinct manner when roused. He used bad language and emitted a strong odour of drink. The wounds were attended to and the patient kept in the casualty department for some hours, but he was not admitted as an in-patient because the house surgeon on duty did not consider him to be suffering from injuries other than those apparent and thought that the man was the worse for drink. Next day he was admitted to the Chelsea Infirmary in an unconscious condition, with heavy breathing. On the third day congestion of the lungs set in and the man died. The post-mortem examination showed that in addition to the external injuries there were contusion of the brain to a limited extent, unattended by fracture of the skull, and fracture of the ribs close to their tubercles, without displacement. At the adjourned inquest held on the 13th inst. the superintendent of the infirmary gave it as his opinion that death resulted in consequence of the supervention of inflammation of the brain induced by the injury to the head. The jury returned a verdict to the effect that the man's death was accelerated by the fact that he was removed from the hospital, and considered that greater care should have been taken by the house surgeon in his examination of the case. There is frequently a difficulty in coming to a conclusion in cases of head injury as to whether the patient is suffering from the effects of alcohol or whether the symptoms may not be due to contusion or laceration of the brain substance, or to concussion, with some cerebral irritation. In a large hospital this difficulty is one which frequently presents itself for settlement, and this is fully recognised at St. Thomas's Hospital, where there are special rules to guide the conduct of the house surgeons in such emergencies.

[1] L'Union Médicale, May 27th, 1893.

A STARVING FAMILY.

How some of the poor live is a problem the solution of which is difficult, even to those who know them well—and even to themselves. To understand how and why they do not contrive to live is often a much more simple matter. The fickleness of markets, trade rivalries and disputes, misconduct and sloth are familiar terms which must each bear an ample share of responsibility, yet withal they do not exhaust its full measure. Other causes exist, equally grievous in effect but untainted by the suspicion of blame. Amongst them, we need scarcely say, is illness. Here is a force which may in any case prove too great for ordinary thrift and prudence to meet; and even the "Northern Farmer" would scarcely condemn the many who have been impoverished by long sickness or by bodily injury as "in the lump" bad. We may mention, in illustration, the case of a man whose child died and was recently subjected to an inquiry at the coroner's court, Mile-end, E. The father, though weak and ailing, worked at intervals, but had been practically laid aside for the last twelve months. Half-starved, the mother could not suckle her infant, which was reared, but unsuccessfully, on artificial food. The case, as was only to be expected, was treated by most of the court in a sympathetic spirit, though one of the jury did not so regard it. In his eyes the infant was the sole sufferer and both parents were shamefully guilty of neglecting it. We are not surprised that his services on the jury were dispensed with, and it is at all events gratifying to know that on further reflection he found words to withdraw his unreasonable accusation. Instances of such helpless misery are far from uncommon and their prevention is clearly a subject of public interest. They constitute a substantial argument in favour of more than one modern theory of social reform. For the present we would notice the support which they render to the system of self-help by insurance against illness, a system which, we would remind our readers, is not limited to the case of the poorer working class. We may also suggest that out-door parish relief should be allowed with more freedom than at present to those who, though working, earn only as much as will provide a thin disguise for their starving penury.

THE ETHICS OF DENTISTRY.

PRACTITIONERS in dentistry who desire to see it conducted upon the principles which have generally ruled in the profession of medicine have many difficulties to encounter and much vulgar competition to cope with. We may hope that with the lapse of time and the increasing proportion of practitioners educated and examined in this

branch of medical art the public opinion of its members will more and more overpower and exterminate the element which relies on advertisement and claptrap for success. But even to the most highly educated and accomplished practitioners there are delicate questions of professional conduct in this branch of practice, perhaps more than in others, which they will not deny to be important. One of these arises from the very nature of the case. The imperfection of teeth is a question of appearance as well as of health and suffering, and an impartial observer cannot help seeing that this consideration is at the root of that enormous development of dentistry practice which we all witness and which throws into the dentist's hands cases which are often cases for the general practitioner. It is almost appalling to hear occasionally of the wholesale removal of teeth even from young and irresponsible people, and of the debts which are incurred by such services, in cases where the relief is imperfect and the general health underlying the condition of the teeth all the while unheeded. What strikes us as being reasonable and as a thing to be insisted on by dentists in such circumstances is a consultation with the family attendant. The teeth cannot be dissociated from the body generally or be treated apart, as they certainly are being treated on a scale and in a fashion unprecedented. It is to the discredit both of the profession at large and of dentists in particular that the underlying conditions of tooth failure are still very imperfectly understood; but that is no excuse for the substitution of artificial ones without the gravest necessity and the suggestion of due consultation with the medical adviser. No one is more sensible than we are of the improvements in dentistry and of the obligation that all medical men are under to its practitioners; but we are sure that we are indicating here a question of high moment alike to families, to the good reputation of dentistry itself and to the good understanding which should exist between those whose temptation is to take a local and limited view of disease and those who take the whole body and system into consideration.

AN ANIMAL PIGMENT CONTAINING COPPER.

WHEN describing in the columns of THE LANCET of May 7th, 1892, the exhibits at the annual conversazione of the Royal Society, we briefly alluded to the interesting discovery of an animal pigment containing copper. The discovery was due to Professor A. H. Church, who isolated the pigment, which he now calls "turacin," from the wing feathers of a plantain-eater, the genus of this family of birds being called *Turacus*. From the striking resemblance between the colour of arterial blood and that of the red touraco feathers a comparison of the spectra was suggested. Two similar absorption bands were present in both cases, but their positions differed somewhat. Iron was naturally sought for in the pigment, but tests soon revealed the presence of an important quantity of copper, greatly exceeding, in fact, that of iron in the blood. Professor Church's search for this pigment in scores of birds related to the musophagidæ has not met with success. The pigment is described as a colloid of copper, and it retains when freshly precipitated an immense proportion of water, one gramme forming a semi-solid mass, with 600 grammes of water. The percentage composition of turacin is probably—carbon, 53·69; hydrogen, 4·6; copper, 7·01; nitrogen, 6·96; and oxygen, 27·74. These numbers correspond pretty closely to the formula $C_{82}H_{81}Cu_2N_9O_{39}$; but upon this expression Professor Church wisely lays no stress. Copper is very widely distributed in the animal kingdom, but besides turacin only one organic copper compound (hæmocyanin) has been as yet recognised in animals. It is noteworthy, Professor Church remarks, in connexion with the periodic law, that all the essential elements of animal and vegetable organic compounds have rather low atomic weights, iron, manganese and copper representing the superior limit. Perhaps natural organic compounds containing manganese will some day be isolated, but at present such bodies are limited to a few containing iron, and to two—hæmocyanin and turacin—of which copper forms a part. The complete history of this new and interesting pigment is not by any means yet known; it is very rare and costly and difficult to prepare in a state of perfect purity, for it resists effectually two methods of chemical purification—viz., crystallisation and distillation. The investigation, so far as it has been carried on, has led Professor Church to note the truth of Professor A. W. von Hofmann's definition of organic chemical research when he described it as "a more or less circuitous route to the sink."

THE DIFFUSION OF SMALL-POX.

AMONGST the localities from which we have received news as to small-pox last week fresh cases have occurred at the following: Bradford, 14; Tottenham, 4; West Ham, 18; Walsall, 5; Birmingham, 12; Leicester, 7; Salford, 2; Oldham, 12; and Hull, 3. Attacks have also occurred at Croydon, Handsworth, Smethwick, Bootle, Ashton-under-Lyne, Blackburn, Keighley, Dewsbury, Middlesbrough, Sunderland, Jarrow, South Shields, Cuckney (Warsop), Holmfirth (Fulstone Local Board District), Leeds (where there is a further abatement), Manchester (one attack only), Mytholmroyd and Withington. The deaths from small-pox in London have been 3, 9, and 4 respectively during the last three weeks, and the number of fresh attacks is slowly diminishing. Early this week there were 319 cases under isolation in the hospital ships and in the convalescent hospitals of the Metropolitan Asylums Board.

THE PITMEN'S HOMES LIBEL CASE.

THE *North-Eastern Daily Gazette* has been doing good work by investigating the sanitary condition of the homes of the pitmen in the county of Durham. In many instances the pitmen cannot choose their dwellings, but must take such cottages in the villages as are provided for them by the mine owners. The pitmen are therefore placed in a difficult position. If they complain to the sanitary authorities of any nuisances that may arise they run the risk of offending not merely their landlord but their employer. Under such circumstances the intervention of a disinterested and independent party is most useful. This is a function which a public-spirited journal might well accomplish. Unfortunately the *North-Eastern Daily Gazette*, in attempting to perform this duty, has fallen foul of the law on libel. The description given of a village built by the mine owners was stated to be so exaggerated as to prejudice miners against living there. Lord Justice Coleridge, before whom the case was judged, held that, the matter being of public interest, it should be held as privileged unless malice could be proved. As is generally the case in such questions, some of the witnesses maintained that the description was exaggerated and others, on the contrary, thought that it was quite accurate. In the matter of witnesses the defendants were at a great disadvantage, for it was necessary to call upon men to bear witness against their employers. Though the criticisms of the newspaper were so far justified that considerable improvements have been effected in the village since the article was published, the jury nevertheless found a verdict for the plaintiffs and the newspaper was condemned to pay a fine of £25. This verdict will certainly have a deterring effect and will check the zeal of the press in its endeavours to denounce evils which the whole community desire to see abolished. We are not sufficiently acquainted with the details of the case to dispute the finding of the jury, but we feel that a blow has been struck which, whether merited or not, may do harm.

It will intimidate those who are desirous of bringing the light of publicity to bear upon unwholesome and dangerous places.

LAUNDRIES AND INFECTIOUS DISEASE.

THE keeper of a laundry in Kentish Town has recently been summoned by the St. Pancras Vestry for having, whilst suffering from diphtheria, wilfully exposed himself in the street and in his shop without taking proper precautions against the spread of the disease. When the defendant was first taken ill the case was notified in the usual way, and one of the sanitary inspectors having found that the defendant was not isolated, a warning notice was served upon him. Dr. Sykes, the medical officer of health, subsequently called and found that the caution had been disregarded. Mr. Cooke, the magistrate who heard the case, fined the defendant £1, and stated that he inflicted a mitigated penalty for the reason that he thought that the defendant's action was not intentional, but was due to carelessness. It is, however, such acts of carelessness against which the public has to be protected, and it is to be hoped that the smallness of the penalty will not encourage other laundrymen to commit similar acts of negligence. But for Dr. Sykes having called at a particular moment it is quite possible that the offence might have escaped detection.

SALVATION ARMY SHELTERS AND THE DIFFUSION OF SMALL-POX.

IT will be recollected that a somewhat recent decision in the High Court was to the effect that Salvation Army shelters need not be registered as common lodging-houses because they were conducted for the purposes of philanthropy and not for gain. Mr. Slade decided last week that the fact that the superintendent of the Salvation Army shelter in Blackfriar's-road charged only a penny per night did not exempt him from the liability to which all other persons are subject who knowingly let for hire any house or part of a house in which any person has been suffering from any dangerous infectious disease without having had such house or part of a house and all articles therein liable to retain infection disinfected to the satisfaction of a legally qualified medical practitioner, as testified by a certificate signed by him. A further plea put forward by the defendant's solicitor that the daily disinfection of the shelter was sufficient for the purpose was also rejected. Mr. Slade's decision is satisfactory not only from a legal point of view but also from that of the public health, and the sanitary authority of St. George the Martyr, Southwark, who instituted the proceedings, has done useful service in bringing the matter before the magistrate. These shelters receive persons of the poorest class, and the reports of the medical officer of health of the county of London (which have been published in the minutes of the London County Council) have shown the part which the vagrant classes play in spreading small-pox in London. It is, indeed, to be regretted that these shelters are not under the same control as other houses receiving lodgers for the night. The fact that they are not intended to be remunerative should, in common sense, be no bar to their registration and regulation, and we trust that it will not be long before the law is altered in this respect.

A MEDICO-LEGAL FARCE.

IT is a mistake to regard the law as a mere body of dry precepts. It is more than this, more than mere matter of fact. Practical, exact and monotonous to the limit of endurance it has yet its endowment of romance. Its history records tragedies as grim in aspect as any of the weird shadows created by fiction, it has its comedies, its emotional melodramas and its farces. The latter, happily it may be, are not the least common of its borrowed associations. They temper somewhat the severity of justice even whilst they tend, as they needs must, to besmirch the pride of judicial ermine. It may be some consolation to the sister profession when, as on a recent occasion, another hitherto respected calling, that of medicine, is compelled to share its forced indignity. In the case we refer to, a person, himself a lawyer, was admitted the worse for liquor, with his leg broken, into the Guest Hospital at Dudley. He received the treatment customary in such cases, and in consideration of his restless habits, which were evident during his convalescence, was retained within the hospital for a longer period than usual. At last, however, he became so insubordinate that he had to be summarily dismissed, and the suit which we have classed amongst the recreations of justice was the result. In it he complained that a plaster-of-Paris dressing ordered for his leg was not used, and he applied on this ground for a verdict of damages to the large amount of 1s. against the resident surgeon. It was shown in court that the plaintiff incurred no risk by his dismissal, which was justified by established rule, and which, therefore, the presiding judge very properly approved. A case like this calls for little comment. Clearly an in-patient in any hospital must conform to the usages of the institution or leave it, and this is a rule which admits of no exception but such as may arise out of the actual necessities of illness. Many persons have no particular liking for the subtleties of law and as little desire to take part in a comic trial, notwithstanding its grotesque associations; few, at all events, of our ever-busy fraternity would regret the introduction of a legal process which could deal in a more summary manner than is at present possible with vexatious cases like the above.

FOREIGN UNIVERSITY INTELLIGENCE.

Basle.—Dr. Buri has been recognised as *privat-docent* in Dermatology.

Bonn.—Dr. Gustav Veit being about to retire from the Professorship of Midwifery and Gynæcology, the post has been offered to and accepted by Dr. Heinrich Fritsch, professor of the same subjects in the University of Breslau.

Nancy.—Dr. A. Nicolas, *agrégé*, has been promoted to the Chair of Descriptive Anatomy.

Naples.—Dr. Francesco Sgobbo has been recognised as *privat-docent* in Neurology.

Rome.—Dr. Pietro Avoledo has been recognised as *privat-docent* in Otology.

Strasburg.—Dr. Heinrich Bayer has been promoted to an Extraordinary Professorship of Midwifery and Gynæcology.

Vienna.—Professor Naunyn of Strasburg has, following the example of Professor Erb of Heidelberg, declined the invitation to take the vacant chair of Medicine.

THE Edinburgh Congress of the British Institute of Public Health will inaugurate its proceedings at the Edinburgh University on Thursday, July 27th, and the labours of the various sections will terminate with a dinner given by the Royal College of Physicians of Edinburgh on Monday, July 31st. Some important papers will be read on the subjects of Housing of the Working Classes, Status of Public Health Officials, Infectious Hospitals &c., and excursions have been arranged around Edinburgh and its environments. Delegates have been appointed from a large number of county councils, corporations and local authorities throughout the British Isles.

THE annual meeting of the British Nurses' Association will be held in the Hall of Balliol College, Oxford, on Monday, July 24th, at 12.15 P.M., when the chair will be taken by Sir Henry Acland.

MR. T. H. OPENSHAW, F.R.C.S. Eng., has been elected Lecturer on Anatomy at the London Hospital Medical School.

THE Royal Commission upon Vaccination held another sitting on Wednesday last at the offices in Great George-street. Sir James Paget presided. Dr. Barry, of the Local Government Board, concluded his evidence, after which Mr. C. Shattock and Mr. C. Watterer gave evidence in favour of vaccination.

MR. W. A. WILLS, M.D. Lond., has been appointed Lecturer on Elementary Medicine at the Westminster Hospital Medical School. Mr. P. R. W. Santi, F.R.C.S., has been appointed a Demonstrator in Anatomy, and Mr. P. Macleod Yearsley, M.R.C.S., L.R.C.P., and Mr. H. H. Mills, M.R.C.S., L.R.C.P., have been appointed Assistant Demonstrators in Anatomy in the same school.

THE total amount received on behalf of the Hospital Saturday Fund for the present year, including the workshops' collections, reaches nearly £10,000.

THE RESULTS OF THE DRESDEN CONFERENCE.

WE have now before us the complete record of the proceedings of the International Sanitary Congress of Dresden, together with those of the various committees that were constituted to report on special points to the full Conference, and also the text of the Convention to which the following countries have adhered: Austria-Hungary, Belgium, France, Germany, Great Britain, Italy, the Netherlands, Russia and Switzerland; and it is hoped that Denmark, together with Sweden and Norway, will also adhere before long. On the other hand, Greece, Turkey, Spain and Portugal are not looked upon as very hopeful; but it is at least satisfactory to note that the delegates of those countries for the first time spoke in an almost apologetic tone of the quarantine restrictions to which they still adhere, and some of them implied that the example of the Great Powers could hardly fail to have an important influence in moulding the opinions of their respective Governments.

We have so recently given a summary account of the principal conclusions that were arrived at in Dresden, that it is not necessary to repeat them. But we may point out that the conclusions range themselves under two headings, and that the success of the Conference has been in large measure due to this fact. In the first place the maximum restrictions that can be imposed as regards land traffic, sea traffic and goods are defined, and the contracting countries undertake not to exceed these. In the second place, certain minimum restrictions are imposed on all alike. In this way agreement was possible as regards countries which differed somewhat in their views; one set could adopt the maximum, another would be content to impose the minimum. And we need hardly point out that the British delegation from the first made it clear that the minimum only would be exacted by England, and their main trouble was to see that this minimum was not made too stringent.

Of the contracting parties, Great Britain exhibited the most liberal mind; then followed Germany, Belgium and Holland; Switzerland was hardly less liberal, except as regards some curious views, which her delegates ultimately withdrew, as to a danger from imported fish; then came France and Russia, who seemed very generally to be in mutual agreement, and Austria-Hungary. But although we place France in the rear rank, yet it is clear that the Conference owed much of its success to her initiative and to the admirable way in which her technical delegates, MM. Brouardel and Proust, set out the subjects for discussion and made proposals as to the form of the various conclusions. Above all, perhaps, England owes much to the French delegates for bringing into the Dresden scheme (and for insisting on its retention) the proposal which they originally made at Venice to the effect that, as regards shipping, vessels were not to be judged by the ports from which they had sailed but by their actual sanitary condition. So long as a vessel was deemed infected because she had sailed from an infected port all vessels coming from our Indian ports were to be dealt with as infected, but now that a vessel is never to be deemed infected unless she has had cholera on board within seven days of her arrival, English vessels will practically never come within the restrictions—even modified as they are—to be imposed on infected ships. Amongst the conclusions which most interest us are the following. Notification of the existence of cholera is to be given by a country to all the other contracting countries. Here, unfortunately, France has interposed a serious obstacle. She only consented to the obligation on condition that nothing short of a *foyer* was to be notified. We have already referred to the utter uselessness of such a notification and we repeat our objection to it. And we are glad to note that our delegates opposed the limitation to a *foyer*. Mr. Farnall wisely urged that England had often procured relief from quarantine to British shipping because it was known that we make no secret as to even isolated cases of cholera in our ports, and because our denials as to the existence of that disease are accepted. The French expressed a contrary opinion, but it is by no means clear that they have ever adopted the principle of absolute openness with regard to every attack of cholera in their midst. Dr. Thorne Thorne went so far as to declare his opinion that the introduction of the term *foyer* would only serve as a means of secreting cholera and of withholding the needed information; but the British delegation did not further oppose because, as Dr. Thorne announced, whatever the conclusions of the conference, Great Britain would continue her practice of at once making public every case of cholera occurring in her midst.

Another point that led to some dispute had to do with the requirement that soiled—i.e., unwashed—linen should be disinfected at the frontiers. Nearly all the advanced nations opposed this view, which France had brought forward; and when the French delegates contended that France had met with considerable success in keeping cholera out of their country by the adoption of this practice, Dr. Thorne pointed out that there was nothing convincing in such an argument for England had had an equal success without carrying out any such practice; and Mr. Farnall urged the conference to be content with disinfecting the unwashed linen of passengers when this was deemed necessary by the local authority. The French, however, would not accept this condition, and they insisted on a vote being taken as to whether the practice should be obligatory, as they wished, or only permissive, and as the result of a lengthened debate they were defeated by a large majority. But meeting on a future occasion they apparently induced other Powers to agree with them, and their demand was acceded to, the proposal being opposed by the British delegates alone. We have referred to this incident at some length because the value of the consistent attitude of the British delegation was thoroughly rewarded, for when the matter came before the full conference at a later stage M. Brouardel finally accepted that which was, in effect, the British proposal—namely, that the obligation should be limited to such linen and other articles as were deemed by the local authority to be contaminated. In other words, whatever other countries may be induced to do, the practice of our English local authorities will remain precisely what it has been.

The only other point of any real importance on which a difference of opinion arose had to do with arrivals in infected ships, and in the case of such vessels the conference decided by a very large majority that persons still in health were to be placed under observation for a period not exceeding five

days after the occurrence of the last case of cholera. This was objected to by the British delegation, and Dr. Thorne announced that England could only accept the conclusion on the understanding that the "observation" was in her case limited to the supervision exercised in this country on people after they had been allowed to go to their own homes. This remained as a point of difference to the end, and at the closing meeting of the Conference it was formally announced by the British delegation that they still held to that view, and that any adhesion of England to the Convention would be thus limited. In short, England would decline to alter her cholera regulations in this respect, and it is generally understood that her acceptance of the Convention has been made subject to a distinct understanding in this respect.

There remains one other question that calls for note. When the subject of dealing with rags and allied articles was under discussion Dr. Koch and Professors Proust and Brouardel gave it as their opinion that there was no evidence to show that rags, in the commercial sense of that term, had ever been known to have conveyed cholera. This was assented to in so far as English experience was concerned and the final conclusion on this point, which seems to have been arrived at with unanimity, is to the effect that no restrictions ought to be placed on those articles deemed to be rags which are imported in bulk and which are compressed in bales by hydraulic pressure and bear marks of origin recognised by the importing country; the same absence of restriction is to apply to "shoddy" and the German wools known as "Kunstwolle." In this single respect the Conference were in advance of our country in so far as removal of restrictions is concerned. Our present Rags Orders have reduced these restrictions to a minimum, but the acceptance of the terms of the Dresden Convention will probably lead to a further relaxation in this respect.

On the whole the Convention shows a very remarkable advance in public opinion amongst the leading nations of Europe, and England is well repaid for her consistent attitude in having invariably refused to sign a Convention which carried with it quarantine restrictions, although the duration of these was constantly diminished—from ten days at the Constantinople Conference in 1866 to seven days at Vienna in 1874, and again to five days at Rome in 1885. Now our delegates have been able to sign a convention of agreement with the Great Powers of Europe in the matter of cholera prevention without the need of imposing any quarantine, whilst leaving foreign countries free to follow in the course which England has for so long held to be the right one.

CHOLERA.

CURRENT NOTES, COMMENTS AND CRITICISM.

WITH the exception of the Mecca outbreak the cholera epidemic has not up to the present manifested itself with any great severity this year. Detailed accounts of the outbreak amongst the pilgrims to Mecca, so far as they have been published up to the present time, show that the loss of life has been very great. The total number of pilgrims to Mecca is estimated at 135,000, and the mortality amongst them is stated to amount to 10 per cent. An abstract of the report of Dr. Chaffy, the Egyptian delegate, addressed to the president of the Sanitary Council in Alexandria, which was published in *The Times* of the 18th inst., gives a brief but graphic account of the lamentable state of affairs brought about by the great mortality amongst the pilgrims. The real object of all sanitary inquiry is to arrive at a sound decision as to the work required to save life in the future, and there cannot be much doubt on this head in regard to these pilgrimages. It is the neglect of Turkey to enforce even the simplest sanitary laws in Arabia that has been the cause of this year's frightful mortality. Egypt is threatened with the introduction of cholera from two sides—from the returning pilgrims from Mecca on the one hand and from arrivals from the French littoral on the other. A French steamer, the *Natal*, arrived recently at Alexandria from Marseilles with a suspicious case of illness on board. The passengers for Egypt were landed at the Mex quarantine station and the steamer went through the Canal in quarantine.

As regards Russia cases of cholera still continue to make their appearance at Moscow and some cases have occurred at Kieff. Cholera prevails in the government of Podolia, in Orel, Bessarabia, Kherson, Stavropol, Kursk, Pensa, Simvirsk, Vialkin, Saratoff and Kuban: but the disease, if widely distributed, may be said to be smouldering, as it is not prevailing to any grave extent or with any epidemic intensity. Its sudden increase in Podolia and its reappearance in the government of Kherson are the main features of interest.

According to the latest intelligence through Reuter's agency, the chief ravages of the epidemic are in the province of Podolia, where the last weekly official report announces 309 cases and 90 deaths; and it still prevails, though in a less degree, in the provinces of Orel, where there were 93 cases and 41 deaths; in Bessarabia, 26 cases and 8 deaths; and in Saratoff, Viatka, Kursk, Tula, Kherson and Tobolsk, not to mention the occurrence of sporadic or suspicious cases that have been notified from other provinces. There is no cholera reported in St. Petersburg, but great activity is being displayed in that city in inspecting houses and premises suspected to be in an insanitary condition. As regards Moscow the outbreak originated in a prison in the person of a woman who came from Kieff. The disease is said to prevail almost exclusively amongst the poorer classes of the population. The Director-General of the Central Administration of Prisons, on learning of the occurrence of cholera amongst the prisoners in Moscow, telegraphed instructions to break up the jails and disperse the prisoners by removing them to the jails of four other cities in the heart of the empire. The preferable course would surely have been to have encamped the prisoners in the most open and exposed sites in the vicinity of Moscow, with military guards over the camps.

From Vienna and Budapest we learn that sporadic cases of cholera have been reported from counties between the Theiss and the Eastern frontier and in Northern Transylvania. It is considered probable by some that the outbreak in East and North Hungary may have been introduced from the Russian province of Podolia. Four cases are reported from the town of Szatmar in Hungary, and a few fresh cases have also occurred at Dees in Transylvania. The disease does not seem, however, to have so far firmly established itself anywhere.

There have been a few cases of suspected cholera notified in Berlin, but they are probably not true cholera. Cases of summer diarrhœa are said to have been rare in Berlin this year.

As regards France, there have been a few fresh cases of cholera at Toulon and in the South of France. Several cases have been reported at Vallauris, in the Alpes Maritimes, and, according to the *Lanterne*, cases of choleraic diarrhœa have occurred in the Clichy district of Paris. Sporadic cases have also been reported from a village on the banks of the Rhone near Lyons, and from Hyères; but as far as official intelligence is concerned there does not appear to have been any great prevalence of cholera in France this year. Speaking generally, other countries have, however, imposed a short quarantine as a precautionary measure on all arrivals from Southern France and French Mediterranean ports.

The amount of discomfort, or even hardship—to say nothing of the interference with commerce—that may arise from an unreasoning fear of infectious disease and the rigid enforcement of quarantine regulations is well exemplified in the case of the steamer *Ferdinand de Lesseps*, which arrived recently at Marseilles from the West Indies and Venezuela. Owing to a recent outbreak of cholera in France the vessel was refused admittance to any harbour of Venezuela or the West Indies, even under quarantine restrictions. The French authorities of Martinique also refused her access on account of two deaths which had taken place on board from small-pox. The Venezuelan authorities at Porto Cabello declined to receive any French emigrants or to allow any portion of the cargo to be landed, and when the ship eventually arrived at Marseilles her troubles were not over, for she was ordered to Frioul to be quarantined. We cannot

help regarding the more simple and reasonable method of procedure adopted in this country as a more effective one and, under all the circumstances, as the best that can be followed in the interests of all concerned.

The time is now fast approaching when the cholera returns from all parts of the Continent of Europe will be scrutinised with anxious care, for epidemic manifestations of the disease are most likely to occur, if they occur at all, within the next ten or twelve weeks.

The steamer *Blue Jacket*, from Marseilles, was boarded at Cardiff, on the 19th inst., by some sanitary officials. There were two cases of cholera on board Other members of the crew had suffered slightly from diarrhœa, but had recovered. The patients were removed to the isolation hospital on the Flatholm and the ship is to be kept under observation and thoroughly disinfected.

REPORT OF THE COMMISSIONERS IN LUNACY FOR THE YEAR 1892.

THE forty-seventh report of the Lunacy Commissioners just published shows that in England and Wales the lunatics, idiots and persons of unsound mind under their cognisance on Jan. 1st last were 89,822 in number, being an increase, as compared with Jan. 1st, 1892, of 1974. The following summary shows their distribution :

—	Males.	Females.	Total.
In county and borough asylums ..	25,883	31,635	57,518
In registered hospitals	2,076	1,880	3,956
In licensed houses—			
Metropolitan	1,204	1,411	2,615
Provincial	790	1,042	1,832
In naval and military hospitals ..	240	—	240
In Criminal Lunatic Asylum, Broadmoor	481	159	640
In workhouses—			
Ordinary workhouses	4,672	6,185	10,857
Metropolitan district asylums ..	2,893	3,128	6,021
Private single patients	185	249	434
Out-door paupers	2,258	3,451	5,709
Total	40,682	49,140	89,822

This total was composed of 8200 (4036 males and 4164 females) of the private class ; of 80,893 (36,102 males and 44,791 females) who were paupers ; and of 729 (544 males and 185 females) who were criminal patients. These figures show an increase for the year of 2055 (1146 males and 909 females) amongst the pauper class—a total decrease of 73 amongst the private class and a decrease of 8 amongst the criminal patients. The net increase of the year of 1974 patients represents an increment of 2·25 per cent. upon the figures of Jan. 1st, 1892. The Commissioners point out that this is a higher ratio of increase than has been usual of late years, though it has been exceeded upon several previous occasions. The admissions during 1892 exceeded those of 1891 by 445 only, a lesser increment in the number of admissions than had taken place in either of the preceding two years. The lower recovery- and death-rates of last year account for upwards of 450 of the increase ; but the two sources of increase alluded to still leave 1079 of the total increase unaccounted for.

The Commissioners offer an explanation of the residual increase in the following terms. "It is important to state that these annual increases, which have been subject to considerable fluctuations, take place almost entirely amongst pauper patients living in asylums, and there can be no doubt that, apart from and beyond the additional new cases brought every year under official cognisance, there are constant influences conducing to the annual increases in the number of the insane shown in our tables. Among these influences the most potent would appear to be—(1) the large proportion of incurables among the admissions—i.e., patients who do not recover and are not discharged, but remain under care until they die ; (2) the difficulty of obtaining homes for cases of a somewhat more favourable type among the admissions, who also do not recover, but so far improve that their continued residence in asylums would not be necessary if homes could be found for them elsewhere. As a rule the friends are too poor to take charge of them and the Poor-law guardians are reluctant or refuse to receive and retain them in workhouses, where, without the 4*s.* Parliamentary grant, the cost of their maintenance would generally equal, if it did not exceed, that of keeping them in the asylum. Further, the confidence which the public has learned to place in the management of these institutions has no doubt conduced to the placing in them of many persons, also incurable, but above the status of paupers, their relatives reimbursing the guardians the cost of their maintenance. Owing to these causes and circumstances the number of recoveries, discharges and deaths falls short of the annual admissions, with the result of a yearly accumulation of chronic cases in the wards of county and borough asylums."

During the past year the proportion of existing and reported lunatics &c. has diminished, as regards the private class, from 2·82 to 2·76 per 10,000 of the general population, but has increased as regards pauper lunatics from 26·81 to 27·21 per 10,000. The proportion of total lunatics to population has increased from 29·88 in 1892 to 30·21 per 10,000. The general rate of recovery for both sexes, as compared with the admissions, was for 1892 38·94 per cent., against 41·04 per cent. for 1891 ; and the death-rate for the same year, calculated upon the daily average number resident, was 9·98 per cent., as compared with 10·19 per cent. for 1891. The Commissioners note that in Table X. the figures show throughout the whole period, from 1859 to 1893, taken quinquennially, a progressive increase in the proportion maintained in asylums, and a corresponding decrease in the ratio kept in workhouses and resident as out-door paupers.

The deaths by suicide that took place during the year were 17 in number. The deaths of 16 persons, due certainly or most probably to suffocation in epileptic fits, were notified to the Commissioners during the year 1892. Fifteen of these occurred in county and borough asylums. The Commissioners say that it is many years since they have had to record so many deaths from epileptic suffocation, the greatest number of such deaths during any one of the previous five years having been ten.

After noting the additions, alterations and improvements that have been made at various asylums, the Commissioners go on to speak at some length of the insufficiency of the present asylum accommodation, and they give particulars of between twenty and thirty counties where the accommodation is quite inadequate and where there is consequent overcrowding or boarding-out of patients. It is satisfactory to learn that although in some asylums diseases suggestive of imperfect sanitary conditions appeared during the past year, in no instance did they assume an epidemic character.

There were 38 deaths from misadventure of various kinds (not suicides) or attended with injuries in the 67 county and borough asylums. In 18 of them the deaths or the injuries which had been sustained prior to death were apparently purely accidental and indicated no want of care on the part of those who were in charge of the patients. In fifteen instances death resulted from suffocation in epileptic fits.

During the year three prosecutions were instituted by the Commissioners and two by visiting justices for the ill-treatment or the wilful neglect of patients by attendants. No grave consequences resulted to any of the patients, and the cases were all dealt with by the imposition of fines.

During the year ended March 31st, 1892, the average weekly cost of maintenance of patients was in county asylums 8*s.* 11½*d.* ; in borough asylums, 10*s.* : in both taken together, 9*s.* 2*d.* These figures show an increase as compared with those for the previous year, and are, indeed, higher than in any year since 1884.

REPORT OF THE MEDICAL OFFICER OF HEALTH OF THE ADMINISTRATIVE COUNTY OF LONDON.

THE first part of this report deals with the subjects of the disinfection and destruction of infected articles and the shelter of persons during the disinfection of their homes in the several districts of the country. After pointing out the requirements of Section 59 of the Public Health (London) Act, which renders it imperative for every sanitary authority to provide within or without their district proper premises,

apparatus and attendance for the destruction and for the disinfection, and carriages or vessels for the removal, of articles (whether bedding, clothing, or otherwise) which have become infected by infectious disease, the provision which the several sanitary authorities in London have made for the carrying out of the Act are described from information supplied by medical officers of health. Thus it appears that in sixteen districts disinfection is carried out by steam, in fourteen it is effected by dry heat, whilst in eleven instances the sanitary authorities have arranged with a contractor for the performance of the work by whom steam is used. The parishes of Charlton and Eltham destroy articles instead of disinfecting them.

After referring to the well-known experiments of Dr. Parsons of the Local Government Board in regard to the process of disinfection by dry heat and steam respectively, Mr. Shirley Murphy points out that dry heat is not only much less destructive of pathogenic organisms than steam, but that, its power of penetration being far inferior, considerable uncertainty must attend its use as a disinfecting agent. Moreover, the time required for the process is tedious, and the working capacity of dry heat apparatus is very small as compared with that of steam. In support of this statement attention is directed to the replies of Dr. Parkes, medical officer of health for Chelsea, and Dr. Lovett, medical officer of health for St. Giles. In the Chelsea dry heat apparatus a feather bed is left in the oven between six and seven hours and the centre of the bed does not attain a higher temperature than 120° F., whilst in the St. Giles' steam apparatus a bed is left in for only thirty minutes, by which time the temperature in the centre of the bed has reached 250° F.

Whilst not disputing the fact that disinfection may be properly done by contractors, Mr. Murphy is not inclined to look with any degree of favour on the contract system. He also suggests that two or three laundries should be erected in London whither sanitary authorities could send articles of clothing, which could be boiled and returned to their owners in a clean condition. Such laundries might also be made use of by those who retain their infectious sick at home.

The various methods adopted for the destruction of infectious articles are to burn them either in destructors, or in furnaces, or in heaps at the vestry wharves, or in open yards, or on ground adjoining the disinfector, or to have them destroyed by contractors.

By Section 60 of the Public Health Act every sanitary authority is required to provide accommodation free of charge for those persons who have been compelled to leave their dwellings in which any infectious disease has broken out in order to allow the sanitary authority the opportunity of disinfecting these places. Where this has been done the provision consists either of one or two rooms or in some cases of small houses set apart for the purpose. In many cases accommodation has only been provided for the day, a term which is of course inadequate. Further, it is stated, great difficulty is experienced in getting people to go to these places. Mr. Murphy also suggests that baths should be provided for persons coming from infected houses.

For the disinfection of rooms sulphurous acid still holds its own, whilst for the disinfection of excreta carbolic acid appears to be the favourite agent, other substances, such as perchloride of mercury, sulphate of iron, Calvert's powder, Sanitas, Condy's fluid, sulphates of zinc, copper and manganese, St. Bede's disinfectant, Burnett's fluid, Jeyes' fluid and chloro-naphthalene, also being in use. The diseases after the occurrence of which sanitary authorities carry out disinfection are usually those which are notifiable; but in a few cases houses are disinfected by request after measles, rötheln and whooping-cough. By some authorities disinfection is practised after the occurrence of erysipelas only in the event of the case having been a severe one.

Referring to the subject of sanitary inspectors, the present return shows that with a population of 4,230,474 London is provided with a staff of 188 sanitary inspectors, in which number are included 17 temporary officers and 5 vacancies. Since 1889, the time of the last return, there has been an increase of 58 men on the sanitary staff; but, inasmuch as prior to the Public Health Act (1891) the abatement of the smoke nuisance was performed by the police, whilst since the date of the passing of that Act this duty has devolved upon the sanitary authorities, the increase has been more apparent than real. In the performance of this work 48 constables were engaged. The average number of inhabitants to each sanitary inspector is about 23,503; ranging from 3409 in the city of London to 57,831 in Newington. As the administration of the Infectious Diseases (Notification) Act, Housing of the Working Classes Act, the Public Health Act and the Factory and Workshops Act has fallen upon sanitary authorities since the issue of the report of 1889, the increase of 58 men in the sanitary staff of the whole of London would appear to be somewhat small. Not only does the report show great variation in the proportion of sanitary inspectors to the population in the several districts, but also in the duties which devolve upon the inspectors, the latter in some districts being provided with clerical assistance in the keeping of registers of complaints and proceedings and in the preparation of notices, whilst in other districts no assistance at all is offered. Marked differences also exist as to the method in which the work of inspectors is carried out: in some districts each sanitary inspector receives a portion of the total area; in some special functions are assigned to each inspector; whilst in others inspectors are limited neither to special portions of their district nor to the performance of any particular kind of duty. The salaries of these officials range from £62 8s. to £350 per annum.

There are at present no female inspectors in London, but the medical officer of health for Marylebone has presented a report to his sanitary authority advising the appointment of two female inspectors for the purpose of inspecting night shelters for women, public lavatories for women, and workshops in which women are employed. Women are already employed in sanitary work in Glasgow, Manchester and Brighton.

RETURN OF STILLBIRTHS IN CANADA, IN AUSTRALIA AND NEW ZEALAND, AND IN THE UNITED STATES OF AMERICA.

WE have already noticed the returns of stillbirths as given in the Parliamentary Paper, No. 279, printed June 21st last, so far as they relate to the United Kingdom and other European countries. It only remains now to notice that part of the paper which refers to certain British colonies and to the United States of America. As might have been expected, the regulations in the colonies partake somewhat of the slackness of the mother country. Thus in the dominion of Canada there are in Nova Scotia, Quebec, North-west Territory and British Columbia no regulations whatever and no information as to the number of stillbirths buried as such. In New Brunswick it appears that they are registered as other births and as both births and deaths; but there is no local legislation and no information available except the form used in registering a stillbirth, which is very complete, giving, besides the names of parents, place of birth and sex of child, also the name of the accoucheur. This form is to be carefully filled in by the physician, parent or other person, and is then to be forwarded to the division registrar. In the province of Prince Edward Island the registration of stillbirths is effected under the provisions of a system for collecting mortuary statistics in certain cities and towns of the Dominion adopted by the Department of Agriculture in or about 1882 and conducted under its control. It commenced in this province (Prince Edward Island) in June, 1883, and was continued in operation until December, 1891. The system is not compulsory and is limited to the city. The registration is carried out by the statistical officer appointed for the collection of mortuary statistics. Stillbirths are registered separately from deaths, and though there is no legal definition of the term "stillborn," practically it is "a child that has not lived to breathe." Only two were registered in 1890. The certificate is bilingual, being both in French and English, being that for deaths, and is very elaborate, giving in addition to the usual details the nationality and the religion of the deceased. In Ontario and Manitoba the registration of all births, still and live, is compulsory. The registration is in the hands of the same authorities (municipal clerks), and stillbirths are registered both as births and deaths, the Ontario Registration Act not defining the term "stillborn child." The penalty for neglecting to register is the same as in other births. No special form is used nor are there any returns of stillbirths interred. Passing on to Australia the only part where stillbirth registration is carried out is in Western Australia,

though the matter is under consideration in Tasmania. In the former registration is compulsory, being carried out by the authorities who register ordinary births and deaths. They are registered both as births and deaths, there being no legal definition of the term "stillbirth." The penalties are the same for refusing to register a birth. The number interred was sixteen in 1890. The form of registration is exactly the same as that of a birth in England. In New Zealand no registration exists and therefore no details are given, and the number of those interred as stillbirths is not known.

In the United States of America stillbirth registration is generally adopted, but there are exceptions and full details are only given respecting the following places. In the city of Mobile they are registered as stillbirths by the authorities who register births and deaths and as stillbirths. The definition of a stillborn infant is one dying before complete separation from the mother, and in 1890 the number buried as such was 114. In San Francisco the regulations are the same, and the number buried in the same year was 369. In Connecticut it was 649; Delaware, 59; Pensacola, 33; Chicago, 1491; Indiana, 850; New Orleans, 490; Massachusetts, 2099; Michigan, 1397; St. Paul, Minnesota, 176; St. Louis, 710; New Jersey, 1795; New York City, 3315; Oregon, 4; Rhode Island, 296; Charleston, 208; and West Virginia, 173. In 1889 in Vermont the number was 231. The forms of certificate are more or less elaborate and vary. That in use in New York City is a very good model. At the top is the following note: "N.B.—No fœtus should be interred or disposed of in any other manner without a permit having been obtained from this division; each permit to be granted upon the presentation of the proper return." Then follow the words: "Certificate of a stillbirth. The death of an infant that has breathed must not be returned as a stillbirth; such deaths should be certified in the usual manner after returning the birth record." No fewer than eighteen items have to be filled up, their being, in addition to those which would be obviously required, the period of utero-gestation, the colour of the infant, the cause of death-birth (*sic*), the signature and residence of the medical attendant or other person making the return, the name of the undertaker and the place of burial.

It follows from all this that the registration of stillbirths is perfectly practicable in any country where births and deaths are registered. It is not creditable that the United Kingdom should be so exceptional in this matter. The adoption of a similar registration would involve no departmental changes, no rearrangement of districts, and no increase in the number of registrars. All that would be required would be that the registrar of each subdistrict would have to keep a third book, "Register of Stillbirths," and of course there would be the increased fees of registration. Whether the report of the Select Committee on Death Certification will contain any recommendations on this point remains to be seen. It is no secret that the officials of Somerset House are not in favour of registering stillbirths. They must, however, be perfectly aware that until this is done our birth registration will continue to be defective, since it is only by the accurate registration of every birth, whether of a living or a dead child, that the exact number of children born alive can be ascertained. Again, Sir Brydges Henniker and his colleagues must be perfectly aware of the irregularities perpetrated by a low class of midwives and undertakers in burying as stillbirths the bodies of infants whose births and deaths ought to be registered, but are not. We have put these two arguments forward as probably carrying more weight with official minds; but we have no wish to ignore the fact, most important to medical readers, that stillbirths are a form of death which is preventable to an extent wholly unknown to the general public but well known to those members of the medical profession who practise obstetrics and whose painful duty it is from time to time to bring into the world children who are stillborn, not from natural or unavoidable causes, but from the ignorance of the many women, self-styled midwives, whose services the poverty, but not the will, of many a parturient woman compels her to accept.

PROPHYLACTIC MEASURES AGAINST CHOLERA AT LIVERPOOL.—On the 14th inst. a conference was held at the Town Hall, Liverpool, between a representative of the Local Government Board and the Liverpool port sanitary authority with reference to the above subject. Mr. T. W. Thompson, medical inspector of the Local Government Board, congratulated the port sanitary authority upon the excellence of their arrangements.

SCHOOL ATTENDANCE AND CHILD LABOUR.

THE Education Department has just issued a very useful report on the conditions of school attendance and child labour. The law, or rather the laws, on these questions are briefly explained; and there is a comparison between our laws and those of France, Germany and Switzerland. Other countries are not mentioned in the report, because they do not come up to the English standard. This report will serve as a document for reference and help very materially to render the legal side of the question intelligible. It also enables us to see that there are still many defects and many anomalies in our law. First and foremost the law is not uniform because the local authorities are allowed to make by laws for the total or partial exemption from school attendance in England and Wales. With regard to partial exemption from school, that varies from the first to the sixth standard. The report observes: "It is impossible to believe that there can be any such difference in the circumstances of different districts as to justify so great an inequality in the requirements of the by-laws." In Scotland, on the contrary, the rule is uniform—namely, the fifth standard for total exemption and the second or third for partial exemption from attending school. It is hardly necessary to insist on the importance of this question with respect to the health of the rising generation. The best system of sanitation will break down if the population is not intelligent enough to help the authorities to carry out sanitary laws, and for the growth of such intelligence a sufficient education must be given. Then, again, we come to another anomaly. There are legal restrictions with respect to the work of children in factories, workshops or mines; but in other occupations there are no such limitations. Then, again, a child under thirteen may work half-time in a factory &c. if he has passed the second or third standard; but after thirteen, to work half-time, he must have passed the fourth standard. Yet, from the public health point of view, the younger the child the more necessary it is to prevent his working. In factories and workshops the employer must obtain a certificate every week that the half-timers in his service have been attending school, but any other sort of employer has only to see once for all that the child has obtained the certificate for partial exemption; he is not held responsible if the child fails to attend school. This latter class of employers abounds in large towns and notably in London. Here we have street sellers, newspaper boys and any number of nondescript traders in whose case there can be no guarantee or proof given that the children do not work an excessive number of hours. The law ought, it seems to us, to apply equally to the street arab and to the child working in a cotton factory.

Abroad the law does not create such anomalies, and the half-time system, which is the cause of so much complication, scarcely exists. In France education is compulsory from the age of six to that of thirteen, but at eleven a child is exempt from further attendance at school if he has a certificate proving that he has passed all the standards of the primary schools. In Paris about 1300 children per annum succeed in getting this certificate before they have reached the age of thirteen. There are a few half-timers between the ages of twelve and thirteen who are apprentices; as for the rest, no child under thirteen can be employed in factories, shops, mines, quarries &c. unless he is twelve years old and has his certificate of primary instruction. Moreover, only certain employments are allowed under the age of thirteen. Up to the age of eighteen the law protects youths against certain dangerous or unhealthy occupations. For instance, between thirteen and sixteen they may not carry more than one kilo of molten glass, and no one under sixteen may blow glass. No girl under sixteen is allowed to work a pedal sewing-machine. From these few details it will be seen that the French law is drawn up distinctly for the purpose of protecting the health of boys and girls and specifies and forbids those occupations that are most likely to check their physical development. In this respect the English law is deficient and requires to be amended.

In Prussia, with certain local exceptions, the time for total exemption from attendance at school is fourteen years, and by the law of June 1st, 1891, no child under thirteen years may be employed in any German factory &c., and after that age only when released from the obligation of attending

school. Children under fourteen may only be employed in factories six hours a day and in no case more than thirty-six hours a week.

The Swiss have a general Factory Law limiting the day's work for men as well as women to eleven hours, but children between the ages of fourteen and sixteen must include in these eleven hours the time they take for meals and for attendance at school. Partial attendance at school is obligatory in some cantons up to sixteen years, in others up to fifteen years. After primary education the children commence secondary education but need only attend school for a few hours, perhaps eight or ten hours a week. By the law of March 23rd, 1877, no child can be employed in a factory under the age of fourteen.

Such, briefly, are some of the main points brought forward in the report that has just been issued. They clearly indicate that the reformer has still much work to accomplish. The law requires to be simplified and rendered uniform; then new clauses have to be added so as to check any physical work proved to be distinctly injurious to children and young persons whose physique is not fully developed.

DISEASE PREVENTION IN ENGLAND.

WE understand that the following memorandum, prepared by Dr. Thorne Thorne, medical officer to the Local Government Board, has been compiled at the request of the Foreign Office, with a view to its circulation amongst British representatives abroad, and to its serving as an answer to a number of requests that are made by foreign countries as to the action taken in England for the prevention of the spread of infection:

In answer to the request of the Foreign Office to be supplied with a memorandum "setting forth the general nature of the standing precautionary measures adopted in the United Kingdom to prevent the introduction of contagious or infectious diseases," I would observe that the details embodied in the following statement relate only to that portion of the United Kingdom—namely, England and Wales—over which the Local Government Board have jurisdiction. The practice of Scotland and Ireland does not, however, differ from that followed in England. The diseases which are in question may conveniently be divided into two principal groups: First, those which year by year maintain themselves, in greater or less amount, in this country—as, for instance, small-pox, scarlet fever, diphtheria, typhoid fever &c.—and which, therefore, have been termed *endemic*; and second, those which appear in our midst only as the result of importation from abroad, such as cholera, yellow fever &c., and which may be designated as *exotic*.

I. With regard to the *endemic group*, English sanitary law and practice have as their basis the principle that for preventing the introduction of these diseases from abroad no other measures are necessary than those adopted within this country for preventing extension of disease of this class from house to house and from district to district. These measures consist in the main of prompt notification of the existence of the disease to the sanitary authority concerned, isolation of the infectious sick in hospital or otherwise, disinfection of infected articles and prohibition as to the exposure of infected persons or infected things. Where small-pox is in question vaccination and revaccination are also resorted to. No detention of persons other than those who are actually suffering from infectious disease is contemplated or, indeed, can be enforced; and, apart from occasional control of children in the matter of school attendance, no hindrance can be placed on the movements of persons not themselves the subjects of infectious illness. The existence of infectious disease on any given premises, and similarly on board any ship, is commonly utilised by the sanitary officials for the abatement or removal of any local conditions which are deemed to be injurious to health.

II. The *exotic group* needs division into two sub-groups: the first consisting of cholera, the second containing yellow fever and plague.

1. Cholera.—As in the case of the endemic diseases, so also in the case of cholera, the Public Health Department of the State recognises no system of quarantine, whether it be the "quarantaine de rigueur" or the "quarantaine d'observation." For nearly fifty years past it has been held that reliance on a quarantine system would be to a large extent impracticable and that any attempt to carry it out would be injurious, both by reason of engendering a false sense of security and by affording a pretext to sanitary authorities for avoiding expenditure of those local funds on which, in this country, we depend alike for effecting large schemes of sanitary improvement and for carrying out our current sanitary administration. Hence our principal trust has been in securing amendment in every way in the sanitary circumstances under which the population are living; and defence against cholera in this sense has been supplemented by the adoption of a series of cholera regulations which apply to our ports and coast line and which are aimed at preventing the introduction of cholera by means of shipping.

Every ship arriving from abroad has to be visited by a Customs officer, who is required, under the cholera regulations, to detain any ship which he has reason to suspect is infected with cholera, and forthwith to give notice of the detention to the sanitary authority, so that the ship may, without delay, be examined by the local medical officer of health. The medical officer of health has also the power of initiating such examination of any ship if he has reason to believe either that such ship is infected with cholera or has come from an infected port. If, as the result of such examination, the medical officer of health certifies a ship to be infected with cholera the ship must be moored at a specified place, and every person on board is required to submit to examination. Every person who, as the result of that examination, is not certified to be suffering either from cholera or from any illness which the medical officer of health suspects may prove to be cholera is permitted to land immediately on satisfying the medical officer of health as to his name, place of destination, and address at such place. This information is communicated to the sanitary authority at the place of each such person's intended arrival, and it is for that other authority to take measures (which commonly include a visit for some five consecutive days, on the newly-arrived person) such as may be expected to prevent extension of cholera should that disease appear in anyone after arrival in their district. Any person on the ship who is certified to be infected with cholera is required to be removed to a hospital provided by the sanitary authority. Should the condition of the patient not permit of this, the ship is detained under the control of the medical officer of health. And any other person certified to be suffering from an illness which it is suspected may prove to be cholera can similarly be detained for the purposes of diagnosis for a period not exceeding two days. The ship is required to be disinfected and other precautionary measures have to be adopted as regards drinking-water, bilge water, infected articles, dead bodies &c., after which she is at once released.

The only instance in which any further measure of restriction can be applied is as to persons on board a ship which, though not infected with cholera, either carries passengers who are in a filthy or otherwise unwholesome condition or has come from a place infected with cholera. If in any such case the medical officer of health deems it necessary to intervene with a view to checking the introduction or spread of cholera, he is required to give a certificate to that effect. When such certificate has been given no person is allowed to leave the ship unless he satisfy the medical officer of health as to his name, place of destination and address at such place, such information to be utilised in the same way as in the case of a ship certified to be infected with cholera. But beyond this there is no right of interference either with the vessel or with those on board.

The English cholera regulations do not profess to be so framed as to prevent all chance of the importation of cholera into the country. They aim at detection and arrest of all actual or suspected cholera at our ports and at giving the earliest possible warning to inland authorities as regards particular persons about to arrive in their respective districts. If, in spite of these measures, the disease should be imported, every sanitary authority has the responsibility for the maintenance of conditions which should enable them to deal with imported cholera in such a way as to prevent its extension.

2. Yellow fever and plague.—These two diseases still remain subject to the Quarantine Act, 1825, and to Orders in Council made subject to that Act; that is to say, to legislation of an earlier period than that which regulates our action with regard to infectious diseases current in the country. Cases of yellow fever rarely reach our shores. The only occasion on which during the past generation the disease gained any footing in this country was in 1865, when the cases were dealt with by the local sanitary authorities on the same principles which commonly govern their action in dealing with the fevers which are endemic with us. Plague is not known to have been a cause of disease or death in England for some 200 years.

(Signed) R. THORNE THORNE.

Local Government Board, June 7th, 1893.

GUY'S HOSPITAL DENTAL SCHOOL.

THE formal opening of the new school buildings and dental laboratories at Guy's Hospital was inaugurated on Monday by Sir John Lubbock. Professor Odling congratulated the dental department on having a bacteriological professorial chair. Sir Edwin Saunders and others also spoke. The laboratories now built are fitted up with, we may say without exaggeration, every modern appliance; the "conservation" room—not altogether a happy term—is likewise well appointed; there are "Morrison" chairs, electric motors, and electric lamps.

The value of this dental department, in which more than mere extractions are performed, to the public is great, to say nothing of the advantage of the student being enabled to undertake his medical and dental course in the same building, and Mr. Newland Pedley is to be congratulated on the deserved success of the school, which by the able assistance of his colleagues he has brought to its present satisfactory condition.

THE LADY HOZIER CONVALESCENT HOME, LANARK.—This home, the gift of Sir William Hozier, Bart. of Mauldslie, to the Glasgow Western Infirmary, was formally opened by the Lord Provost of Glasgow on Monday, 10th inst. The building, which has extensive grounds, provides for the accommodation of forty or fifty patients, male and female. Exclusively of site and equipment, the total cost of the building is about £6000. Sir William Hozier formally handed over the title-deeds to the representatives of the Western Infirmary, and Mr. Leonard Gow, on behalf of the infirmary managers, tendered their gratitude. Lord Provost Bell said the institution would require support and when it asked for aid he felt sure it would be forthcoming. One thousand pounds would be required, as the annual cost of maintaining a bed was, he understood, between £35 and £40.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Sanitary District of the County of Durham.—Dr. Eustace Hill's report takes the form of a summary of the district reports, together with an introduction on the sanitary conditions and requirements of the county. Compulsory notification of infectious diseases is in force in twenty-nine districts, having a total population of 529,349, whilst the remaining thirteen, with a population of 207,170, have as yet not adopted the Notification Act, although some very densely populated areas are included amongst them. Dr. Hill tells us that the cost of notification amongst those districts which have adopted the Act was during 1892 at a rate of £1 2*s.* 7*d.* per 1000 of the population. These figures do not include measles, the notification of which has been found so expensive in two of the districts that it has been recently discontinued. In commenting upon this fact, Dr. Hill remarks that unless notification of this disease is made compulsory throughout the county and power is given to isolate the early cases little good is likely to result. School closure as a means of preventing the spread of measles has been attended with varying results in the county; in some districts it seems to have served to stamp out the disease; in others to temporarily arrest it; while in yet others no good appears to have resulted. There appears to have been some misunderstanding on the part of some of the medical officers of health as to their duty in sending copies of any special reports they may have made to the County Council, and Dr. Hill points out that by the Local Government Board's order of March, 1891, their duties in this respect are the same, whether or not part of their salary be repaid by the County Council. Considerable improvement has apparently taken place in the character of the reports of the various districts, and Dr. Hill is inclined to attribute this—in part at least—to the fact that a large proportion of the reports are now printed. It certainly is desirable that this should be the case, and it seems hard to expect a medical officer of health to produce an elaborate report and to give him no opportunity of educating those under his care in sanitary matters. Where, however, as in the case under notice, the reports are summarised by the county medical officer of health, the public still have an opportunity of referring to any report they may be interested in. The death-rate of the county was, during 1892, 18·4 per 1000, the rate for the urban district being 18·4 and for the rural district 18·5. The infantile mortality in the urban districts was 152 and in the rural 156. As regards the zymotic death-rate, the urban districts yielded one of 2·55 and the rural one of 2·12. There are signs of some activity in the erection of fever hospitals in the county, but it is disappointing to learn that in most cases the structures are but temporary ones. Dr. Hill refers to the great initial expense of permanent buildings and advocates the formation of joint hospital boards as the best solution of the difficulty. In concluding his report Dr. Hill advises the county council to institute a course of popular lectures on public and domestic hygiene.

Liverpool Urban Sanitary District.—Assuming the continuance of the decrease which obtained in the population of Liverpool between 1881-91, it is estimated that the present population of the borough is 513,790. In spite, however, of the decrease, Liverpool easily maintains its position as the most thickly populated city in the kingdom, having 98·6 persons per acre, as against 57·1 for London. During the prevalence of cholera on the Continent last year every precaution was taken to deal with any cases of that disease which might be imported into the city. The emigrant lodging-houses, which are under common lodging-houses' by-laws, were visited frequently both by day and night. Several Russian Jews developed symptoms clinically undistinguishable from cholera, and in one case cultivations of the comma bacillus were obtained. With regard, however, to the latter case, the period of incubation was so lengthy that there was some doubt as to its real nature. There were 73 cases of typhus fever in Liverpool during 1892 and 18 deaths from the disease. With the sanction of the President of the Board of Trade, the Liverpool Corporation has drawn up by-laws for the licensing of seamen's lodging-houses under the Merchant Shipping (Fishing Boats) Act, 1883. Dr. Stopford Taylor's report contains a capital spot map of the borough, and numerous statistical tables which bear witness to the enormous amount of sanitary work done in the district.

Portsmouth Urban and Port Sanitary District.—Influenza caused no less than 165 deaths during 1892, but the majority occurred during the first quarter of the year. Scarlet fever, though prevalent to a considerable extent, only yielded a case mortality of 1·8 per cent., and this is perhaps the more remarkable in that many cases had to be refused admission to the fever hospital owing to want of beds. As regards enteric fever, Dr. B. H. Mumby states that it shows itself to an undue extent in the borough; whereas, owing to the good water-supply, it should be a rare disease in Portsmouth. He attributes its prevalence to the imperfect drainage arrangements and the resulting pollution of the subsoil under houses. As an example of the value of notification Dr. Mumby gives a table to show that those diseases which are notifiable have decreased since compulsory notification more rapidly than those which are at present not notified, and he expresses satisfaction at the manner in which notification has worked in the district. Under the Housing of the Working Classes Act, 1890, the council are about to demolish an unhealthy area in this district, and fifty-nine houses have, during the year, been certified as unfit for human habitation. During the inspection of workshops, for which a special inspector has been appointed, no less than 107 notices to abate overcrowding were issued, and of these 104 have been complied with. In his capacity of port medical officer of health Dr. Mumby reports that since the middle of August a careful inspection of all ships and crews coming from possibly infected ports has been made outside the harbour. The port sanitary authority has provided a floating hospital for cases of cholera, and it has been arranged that it is to be moved near the quarantine ships at the Motherbank should it be used for the purpose for which it is intended.

Blackpool Urban Sanitary District.—The populaton of this district, estimated on the assumption of 4·84 persons to each house, was, for 1892, 26,740. The death-rate of the borough varied from 13·6 to 17·85 per 1000, and the zymotic death-rate from 0·44 to 1·88. The variations of the infantile mortality in the various wards were very marked, ranging from 111·9 to as much as 263 per 1000 births, whilst the quarterly rate for the whole district varied from 200 in the first quarter to 107 in the second. Dr. Jasper Anderson draws attention to the exceptionally high rate of deaths after confinements which occurs in Blackpool—i.e., 15·6 per 1000 registered births, as against 4·89 per 1000 for England and Wales (1890). An endeavour is being made in Blackpool to treat phthisis as an infectious disease. In every case after death from phthisis the sanitary authority makes an offer, which in many cases has been accepted, to disinfect the house. In addition to this an admirable memorandum as to the prevention of phthisis accompanies the offer of disinfection. Dr. Anderson is also endeavouring to obtain the notification of all cases of phthisis. There is no doubt that if Dr. Anderson's circular were acted upon in all houses where phthisis exists much good would be effected. Possibly the medical practitioners might find copies useful to leave with the patients' friends.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6361 births and 4914 deaths were registered during the week ending Saturday, July 15th. The annual rate of mortality in these towns, which had increased in the preceding seven weeks from 17·5 to 23·8 per 1000, further roselast week to 24·8. In London the rate was 22·9 per 1000, whilst it averaged 26·2 in the thirty-two provincial towns. The lowest rates in these towns were 12·3 in Huddersfield, 12·5 in Halifax, 13·4 in Bristol, 14·2 in Brighton and 16·2 in Plymouth; the highest rates were 31·6 in Bolton, 34·7 in Wolverhampton, 34·9 in Liverpool and in Salford and 51·6 in Preston. The 4914 deaths included 1431, which were referred to the principal zymotic diseases, against numbers increasing from 415 to 1197 in the preceding six weeks; of these, 1024 resulted from diarrhœa, 112 from measles, 95 from whooping-cough, 72 from diphtheria, 65 from scarlet fever, 48 from "fever" (principally enteric) and 15 from small-pox. The lowest death-rates from these diseases were recorded in Huddersfield, Bristol, Halifax, Newcastle-upon-Tyne and Gateshead, whilst they caused the highest rates in West Ham, Salford, Blackburn, Leicester and

Preston. The greatest mortality from measles occurred in Blackburn and Preston; from scarlet fever in Swansea; from whooping-cough in Norwich, Liverpool and Salford; and from diarrhœa in Manchester, Leeds, Birmingham, Salford, Sheffield, Bolton, Leicester and Preston. The 72 deaths from diphtheria included 51 in London, 3 in Cardiff and 3 in Manchester. Five deaths from small-pox were registered in West Ham, 4 in London, 2 in Oldham, and 1 each in Manchester, Blackburn, Bradford and Sunderland, but not one in any other of the thirty-three large towns; 364 cases of this disease were under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, against 410, 397 and 381 at the end of the preceding three weeks; 61 new cases were admitted during the week, against 76 and 68 in the preceding two weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2924, against numbers increasing from 2024 to 2885 on the preceding thirteen Saturdays; 348 new cases were admitted during the week, against 346 and 362 in the preceding two weeks. The deaths referred to diseases of the respiratory organs in London, which had declined from 252 to 235 in the preceding three weeks, further fell to 203 last week, but were slightly above the corrected average. The causes of 73, or 1·5 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Brighton. Bristol, Cardiff, Nottingham, Newcastle-upon-Tyne and in eight other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham and Preston.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 21·5 per 1000 in each of the preceding two weeks, rose to 21·9 during the week ending July 15th, but was 3·8 per 1000 below the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 17·3 in Paisley and 18·5 in Edinburgh to 29·0 in Greenock and 29·2 in Perth. The 616 deaths in these towns included 59 which were referred to diarrhœa, 26 to whooping-cough, 23 to measles, 6 to "fever," 3 to scarlet fever, 1 to diphtheria and not one to small-pox. In all, 118 deaths resulted from these principal zymotic diseases, against 135 and 132 in the preceding two weeks. These 118 deaths were equal to an annual rate of 4·2 per 1000, which was 3·0 below the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of diarrhœa, which had been 56 in each of the preceding two weeks, rose to 59 last week, of which 43 occurred in Glasgow. The deaths referred to whooping-cough, which had been 17 and 23 in the preceding two weeks, declined again to 26 last week, and included 20 in Glasgow and 4 in Edinburgh. The fatal cases of measles, which had declined from 50 to 32 in the preceding three weeks, further fell last week to 23, of which 9 occurred in Glasgow and 8 in Greenock. The 6 deaths referred to different forms of "fever" exceeded those recorded in recent weeks, and included 3 in Glasgow and 2 in Edinburgh. The deaths from diseases of the respiratory organs in these towns, which had declined from 99 to 87 in the preceding three weeks, further fell to 77 last week, but exceeded by 12 the number in the corresponding week of last year. The causes of 58, or more than 9 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 30·7 and 24·6 per 1000 in the preceding two weeks, rose again to 27·1 during the week ending July 15th. During the thirteen weeks of last quarter the death-rate in the city averaged 26·2 per 1000, against 19·5 in London and 18·0 in Edinburgh. The 182 deaths in Dublin during the week under notice showed an increase of 17 upon the number in the preceding week, and included 38 which were referred to the principal zymotic diseases, against 35 and 34 in the preceding two weeks; of these, 30 resulted from diarrhœa, 4 from "fever," 2 from measles, 2 from whooping-cough, and not one either from small-pox, scarlet fever or diphtheria. These 38 deaths were equal to an annual rate of 5·7 per 1000, the zymotic death-rate during the same period being 5·8 in London and 2·1 in Edinburgh. The fatal cases of diarrhœa, which had been 22 in each of the preceding two weeks, increased to 30 last week. The deaths referred to different forms of "fever," which had been 5 and 3 in the preceding two weeks, were 4 last week. The 2 fatal cases of measles showed a decline of 4 from the number in the preceding week, and the 2 deaths from whooping-cough corresponded with the number in the previous week. The 182 deaths registered in Dublin last week included 63 of infants under one year of age and 42 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons showed an increase upon those recorded in the preceding week. Five inquest cases and six deaths from violence were registered; and 47, or more than a fourth, of the deaths occurred in public institutions. The causes of 22, or more than 12 per cent., of the deaths registered in the city last week were not certified.

THE SERVICES.

MOVEMENTS IN THE MEDICAL STAFF.

SURGEON-MAJOR DAY, who belongs to the Indian Establishment, exchanges with Surgeon-Major Drury, who takes his place in India. Surgeon-Captain Crofts has returned from a tour of service on the West Coast of Africa. Surgeon-Captain O'Brien has rejoined at Belfast and Surgeon-Captain Baylor and Surgeon-Lieutenant Walker have resumed duty at Cork. Surgeon-Lieutenant Buchanan has been detailed for duty at Strensall Camp from Pontefract. Surgeon-Captain Ferguson has quitted Longford on leave of absence. Surgeon-Lieutenant Farmer has reported himself for duty in Dublin. Surgeon-Captains Sawyer and Maturin have returned to Gibralta from leave of absence.

ARMY MEDICAL STAFF.

Surgeon-Major-General William Marshall Webb is placed on retired pay.

INDIA AND THE INDIAN MEDICAL SERVICES.

The following appointments are announced:—10th Bengal Infantry: Surgeon-Lieutenant V. G. Drake-Brockman, to the Officiating Medical Charge of the Regiment. Surgeon-Captain W. C. Vickers, to be Civil Surgeon of the Shwebo District in addition to his military duties. Surgeon-Colonel J. Warren, M.I., to the office of Principal Medical Officer, Bombay Army. Surgeon-Captain A. R. S. Anderson, I.M.S., Bengal Establishment, to be Surgeon-Naturalist, Marine Survey of India. Surgeon-Major H. W. Stevenson, Superintendent of Mahableshvar in the district of Satara, to be a Magis of the First Class in that district. The services of the undermentioned medical officers, I.M.S., are placed permanently at the disposal of the Bengal Government: Surgeon-Captain F. A. Rogers, D.S.O., Surgeon-Captain T. Grainger, M.D., and Surgeon-Captain C. R. M. Green. The services of Surgeon-Captain A. Coleman, I.M.S. (Bengal), are placed temporarily at the disposal of the Government of the Punjab. The services of Surgeon-Captain E. Hudson, F.R.C.S., I.M.S. (Bengal), have been replaced at the disposal of the Military Department. The services of Surgeon-Captain C. H. James, I.M.S. (Bengal), are placed temporarily at the disposal of the Government of the Punjab. The services of Surgeon-Captain J. L. T. Jones, M.B., I.M.S., are placed at the disposal of the Government of India.

NAVAL MEDICAL SERVICE.

Fleet-Surgeon James Trimble has been placed on the Retired List, with permission to assume the rank of Deputy-Inspector-General of Hospitals and Fleets. Staff-Surgeon William Frederick Spencer, M.D., has been promoted to the rank of Fleet-Surgeon in Her Majesty's Fleet. The following appointments are announced:—Surgeons: Martin H. Atock, M.D., to the *Vivid*, additional, and John A. Keogh, B.A., M.B., to the *Plover*.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Edward J. Lloyd, M.D., to be Surgeon-Major.

YEOMANRY CAVALRY.

A certificate of proficiency has been awarded to Surgeon-Lieutenant C. E. Leopold B. Hudson of the Middlesex (Duke of Cambridge's Hussars) Yeomanry Cavalry.

VOLUNTEER CORPS.

Artillery: 7th Lancashire (the Manchester Artillery): Surgeon-Captain D. Macneilage, from the 1st Argyll and

Bute Volunteer Artillery, to be Surgeon-Captain.—*Rifle*: 1st Volunteer Battalion, the Loyal North Lancashire Regiment: Septimus Farmer, Gent., to be Surgeon-Lieutenant.—6th Volunteer Battalion, Manchester Regiment: Surgeon-Captain T. Fort to be Surgeon-Major.

NETLEY HOSPITAL.

The examination of the Surgeons on probation for the Army Medical Staff and Indian Medical Staff, which is held at the end of the course of instruction in the Army Medical School, Netley, will terminate on Saturday, July 29th. The results will be announced on Monday, July 31st, in the Lecture Theatre, Royal Victoria Hospital, Netley, when the prizes will be presented by Lieutenant-General Sir Robert Biddulph, G.C.M.G., C.B., Quarter-Master-General of the Army. Surgeons on probation will be granted leave of absence before joining a class of instruction in Stretcher Drill at Aldershot.

LEEDS VOLUNTEER MEDICAL STAFF CORPS.

The annual prize competition was held on Saturday, July 15th, in the Bagby-fields, Leeds. The judges were: Stretcher Drill and First Aid, Brigade-Surgeon-Lieutenant-Colonel Loe, 3rd Volunteer Battalion, Prince of Wales's Own (West Yorkshire Regiment), and Surgeon-Captain Rowan, Army Medical Staff; Infantry Drill and Guard Mounting, Major Rowe, Volunteer Battalion, the Prince of Wales's Own (West Yorkshire Regiment); and Waggon Drill and Field Kitchens, Surgeon-Captain De B. Birch, Volunteer Medical Staff, and Lieutenant and Quartermaster W. Gardner, Leeds Company, O.M.S.C.

INOCULATIONS AGAINST CHOLERA.

People in India are evidently desirous of neglecting no possible precaution they can take against cholera, if we may judge from the number of persons who have willingly subjected themselves to M. Haffkine's anti-cholera inoculation. At Simla 210 individuals, including some ladies, and at Dagshai 400 men of the Argyll and Sutherland Highlanders were inoculated.

GREENWICH HOSPITAL PENSION.

The Greenwich Hospital pension of £50 a year for Fleet-Surgeons, rendered vacant by the death of Deputy-Inspector-General of Hospitals and Fleets Charles T. S. Kevern, has been conferred on Fleet-Surgeon James D. Cronin, M.D.

THE UNREADINESS OF THE MEDICAL SERVICE FOR WAR.

We are glad to notice that this subject, which is of great importance to the public as well as to the Army Medical Service, is not likely to be overlooked from want of attention being called to it. Whenever any military expedition or war takes place the newspapers and the public are careful to mark what is done amiss or left undone by the Medical Service, but how will it be possible for army practitioners to acquit themselves well in any future war if they are not acquainted with the war equipment and materials which they would have to use? Field hospitals, medical and surgical stores, tents, stretchers and other appliances employed in war are stated to be rarely, if ever, seen by the majority of medical officers in this country, and a correspondent in the *Army and Navy Gazette* says that no one knows who is to blame for this, whether it is the War Minister, Commander-in-Chief, or Director-General. The correspondent declares, in effect, that the younger army surgeons are trained in chemical, microscopical and bacteriological matters, but know practically nothing of what is imperatively required of them on field service. A scientific training will not count for much if a whole column is delayed in an important combined movement because the hospital is not ready. Army medical officers can scarcely be expected to pack and unpack hospital stores, or know where to find or how to use them, if they never happen to have seen them before.

THE INDIAN CURRENCY.

As might be anticipated, the Indian papers are full of the report of Lord Herschell's Committee. Questions of finance and coinage are, as a rule, outside our province, but they possess a good deal of interest for all who are serving in India at the present time, and we are consequently justified in briefly referring to the subject. According to the speech of the Viceroy of India at a meeting of the Imperial Legislative Council in Simla, it appears that the Indian Government laid its scheme as to the best way of encountering the danger and difficulty of a fluctuating exchange before Her Majesty's Government a year ago. It is of course a source of gratification to the Government of India that their judgment and proposals have been endorsed and ratified by a committee of experts in this country. The Viceroy strongly asserts that the issues did not merely involve certain interests and certain classes of the community, but every interest and every class throughout the Indian Empire. The question was one, as we have said, of real urgency and of great difficulty, about which opinions are still probably not unanimous; but the report of Lord Herschell's Committee, which occupies 140 pages of the *Gazette*, is practically unanimous. All the servants of the Government of India—civil and military, and including of course medical officers—may be thankful at any rate that they are saved from the effects of what seemed to be imminent—viz., a further fall in the gold value of silver, which would have been disastrous to India if its mints had remained open for the receipt and coinage of any quantity of a depreciated metal.

Correspondence.

"Audi alteram partem."

"THE NERVOUS SEQUELÆ OF INFLUENZA."

To the Editors of THE LANCET.

SIRS,—I have read the lecture on the above subject by Dr. Gowers with great interest and can testify by my own experience to its great accuracy and value. I take up my pen, however, to write a word on the position he takes in reference to the nature of the disorder, corroborating, as he appears to do by his great authority, the very common opinion in this respect. Influenza is spoken of as a distinct disease, having characters of its own, followed very often by a series of nervous phenomena which are called the sequelæ. It is to this view of the complaint I demur. I do not recognise a hypothetical disease antecedent to or outside symptoms which denote a grave disturbance of the nervous system. My own experience teaches me that the nerve symptoms constitute a very essential part of the complaint and in many cases are the primary and only symptoms. Many of these, which I have heard spoken of as the sequelæ, were observed during the very first hours of the illness and continued until its termination months afterwards. I am led to regard the nerve disturbances, therefore, as the very essence of the complaint, and that these cannot be called sequelæ according to the usual acceptation of the word. If one thinks of the fatal cases during the late epidemic, where there was fever with a pulmonary affection of either a bronchial, congestive or pneumonic kind, one is struck with the remarkable depression, apparently due to a direct nerve influence on the heart. I saw several such cases with so rapid failure of the heart's action as to clearly distinguish them from those of ordinary pneumonia or bronchitis. So that even when the patient died from pneumonia the nerve symptoms appeared to have been the main instrument in the fatality. The same occurred also in those cases which were described as simply febrile; but there was, besides, a large number of cases, some of which I closely watched, where the primary and only symptoms were of the nerve kind. We generally speak of the consequences or sequelæ of acute diseases when altogether new phenomena arise after the disorder has passed and occur only in exceptional instances. Now this relationship cannot hold good in the case of influenza and its attendant nerve symptoms, seeing that these sometimes constitute the whole of the complaint. This is my contention. It would be surprising if others had not observed similar cases to my own, of which I will give one or two examples. I was one day in a house seeing some members of the family suffering from catarrhal influenza, the lady of the house being quite well. On the following day I found her in bed unable to move. She had attempted to get up, found her legs weak and then fell. She subsequently had some pains and other nerve symptoms. She had no fever, though carefully watched; not the slightest cough or any other acute symptoms. After several weeks she slowly recovered. A medical man who was attending a large number of cases of influenza began to feel numbness and weakness in his legs, followed by pain. He had to take to his bed, when the pains became most severe and he was quite unable to move his limbs. He himself thought he had acute rheumatism. When the pains in the nerves and the muscles became so excessive that he could not be touched two medical men diagnosed spinal meningitis; he probably had, however, a

general neuritis. It was several months before he recovered. In another case the symptoms were less severe, but most marked as connected with nerve disturbance from the very commencement. He was in attendance on several bad cases of influenza in the winter of 1892, when he began to have numbness and weakness of his legs; in two days he could not stand. He was obliged to take to his bed, was carefully watched, and never had a rise of temperature or any other symptom, except a tendency to syncope. After several weeks he recovered, having for a long time all the symptoms of ataxia. The tendency to syncope at the beginning of the disorder is not at all uncommon, and several fatal cases have been recorded. It seems indeed as if some poison was acting on the upper part of the spinal cord and so affected the vagus nerve. One patient was recommended after three months' illness to go into the country to complete his convalescence from the effects of influenza. He answered that when after three days' illness he could scarcely walk from weakness and pains in his legs he was ordered to bed, and now after three months he was ordered to go out when his symptoms were exactly the same in every particular as at the beginning. Another patient, who was rather suddenly seized with weakness of the legs and was told six weeks afterwards that it was the result of influenza, declared that he had had no other influenza but that, and was somewhat angry with a medical man who told him he must have had febrile symptoms; they might have existed without his knowledge or been overlooked; but assuredly he must have had something prior to the nerve trouble. To some minds it seems difficult to make clear that these nerve symptoms can occur without a previous febrile state.

All the facts of influenza seem to me to point to its nervous origin. In very many cases there is an associated fever or pulmonary inflammation, but in others the symptoms seem purely of a nervous kind. I think therefore the word "sequelæ," as applied to the essential nerve symptoms, is misleading. Dr. Gowers may disagree with me as to my opinion of the nature of the complaint, but more probably may not differ much from my views, and explain that the word "sequelæ" is used by him in a more general sense than my definition allows. It refers, he may say, to the fact of the long continuance of the symptoms and even to their development as the case progresses—for example, that a neuritis of three months' standing may be called a "sequel," although it commenced the illness. A very large number of cases will be required to afford a good report on influenza, and the subject must be further discussed from the point of view I have been taking.

I am, Sirs, yours truly,

Grosvenor-street, W., July 18th, 1893. SAMUEL WILKS.

"EXAMINERS AT THE COLLEGE OF SURGEONS."

To the Editors of THE LANCET.

SIRS,—In an annotation on "Examiners at the College of Surgeons" in THE LANCET of July 15th a covert insinuation of political dishonesty is made against myself and Mr. Mayo Robson for voting against a motion proposed by Mr. Willett and seconded by Mr. Tweedy: "That in the opinion of this council it is desirable that no one who has been elected a member of the Court of Examiners should at the expiration of his period of office be eligible for immediate re-election, but that this resolution shall not apply to the existing members of the Court of Examiners." This resolution, which deals with a matter of detail, is magnified into a cardinal point of reform, and the writer, after mentioning the names of those who voted for and against the resolution, confesses "to some surprise at finding the vice-president of the Association of Fellows" (myself) "and one of the specially selected candidates of the Association at the last election" (Mr. Mayo Robson) "giving an adverse vote." A recommendation of the Association in 1884 of a similar kind to Mr. Willett's motion, but passed as an amendment to the Charter, is quoted at the end of the article.

Permit me to say that in 1884 I did not belong to the Association or take any part in its proceedings, but during the last five years I have been an active member of this body and identified with its policy. During that period the committee of the Association has carefully abstained from formulating any suggestion in regard to the vexed question of examinerships, directing its energies to the primary point of all reform at the College so far as the Fellows are concerned—viz., to secure for the Fellows a consultative voice in the affairs of the College and a position akin to that occupied by the Fellows of the Royal College of Physicians. To this policy all adhere, but considerable difference of opinion would probably be shown in regard to the relation of examiners to the council. On this subject everyone is free to think, speak and vote as his judgment dictates, so that any suggestion that I have departed by a single hair's breadth from any professed principles falls at once to the ground. And now a few words in regard to the substance of Mr. Willett's motion. It will probably be conceded that the first duty of councillors at the College is to administer faithfully the affairs of the institution in accordance with the provisions of the charters and by-laws as they stand. The Charter provides that every Fellow of the College who shall be elected to the office of examiner shall go out of office at the end of five years from the day of his election, but that it shall be lawful for the council of the said College immediately to re-elect such person to the said office. The retiring examiner is declared by the Charter to be eligible for immediate re-election. Mr. Willett's motion would have declared him to be ineligible and to my mind is directly at variance with the Charter. The motion, if carried, would have been inoperative; and I declined, and always shall decline, to vote for motions contrary to existing charters and by-laws, and motions which would be futile and inoperative. If the resolution had affirmed the expediency of amending the Charter in this particular it would have stood upon a different footing, but even then the question of continuity or non-continuity of examinerships is by no means so simple as it appears. There is much to be said on both sides of the question.

I am, Sirs, yours truly,

Wimpole-street, July 18th, 1893. WALTER RIVINGTON.

*** We need hardly disclaim any intention of making an "insinuation of political dishonesty" against Mr. Rivington or any of those gentlemen who voted with him. The names were obtained by us through the ordinary channel of official information. We approved the purport of Mr. Willett's resolution as being in accordance with the opinions advocated by THE LANCET for more than half a century. The precise subject under discussion has frequently been considered by THE LANCET during the last twenty-five years, and more particularly in the years 1870–73 and again in the years 1883–84. We take this opportunity of stating that THE LANCET is in no sense the special advocate of the Association of Fellows of the Royal College of Surgeons, or of any other body. Since the Association was formed nine years ago THE LANCET has given it a steady general support, because the Association had adopted and pursued a policy of reform which had for so many years previously been persistently advocated by THE LANCET. But in this as in all other matters THE LANCET will continue to maintain its right to free and independent action.—ED. L.

SURGEON-MAJOR KING AND THE USE OF VARIOLOUS LYMPH.

To the Editors of THE LANCET.

SIRS,—Mr. Russell's answer in the House on July 3rd to Sir William Wedderburn's question (for Mr. Hopwood) as to whether Surgeon-Major King had been punished for vaccinating with lymph (variolous or small-pox), or small-pox, in fact, inoculated into the cow and thence taken to vaccinate human beings? opens up a question in vaccination, as carried on in India, of the greatest importance to the future of this great prophylactic in that vast country, and I can only hope that some member of our profession in the House will call for full particulars regarding this case. You may remember that about thirteen years ago you kindly published in THE LANCET particulars of an experiment I carried on at Meerut, N.W.P., India, to test the possibility of Dr. Badcock's experiments, by which he seemed to have produced artificial vaccinia in the cow by means of variolous inoculation from the human subject. My experiments at first seemed to hold out hopes of success, but as I continued them and with the greatest care avoided all possibility of vaccine lymph being used (which cannot be said for Dr. Badcock's experiments), I

could see at once that nothing truly constitutional occurred, and that if I had used the contents of the pustule—for it was never a vesicle—I should simply have inoculated the child with small-pox and thus have repeated the experiments which alarmed my uncle, the late Dr. G. G. Macpherson, some fifty years before in Bengal, when, as he told me in 1873, the most alarming results followed what he hoped would be simple vaccination. There is much that needs clearing up in Surgeon-Major King's case, and if Mr. Russell said, "Surgeon-Major King was censured and transferred from civil to military duty for having used, without authority from the Government of India, a form of lymph not sanctioned by the Government for use amongst the native population," all I can say is that something has occurred in the Indian vaccine department since I retired in 1884 which to me is absolutely inexplicable, and I wonder what it must be to many others. During my thirty years' service in India from 1854 I think I have seen as much vaccination and studied inoculation as closely as any medical officer in the Indian army, and yet I repeat that I cannot understand why Surgeon-Major King has been punished.—I am, Sirs, yours truly,

ROBT. PRINGLE, M.D. Edin., Brigade-Surgeon.

Blackheath, Kent, July 10th, 1893.

"NEW REMEDIES": "HOS EGO VERSICULOS FECI; TULIT ALTER HONORES."

To the Editors of THE LANCET.

SIRS,—Under "New Remedies" in Wright's *Medical Annual* I find it stated that Dr. E. S. Stuver, having remarked on the great value as a germicidal agent and deodoriser of peroxide of hydrogen, considers that its most characteristic property is the extreme avidity with which it combines with and decomposes pus. In my *brochure* on "Therapeutics and Disease," published in 1870, I advocated the application of oxidising agents to all suppurating surfaces, and for the purpose of preventing putrefaction. I pointed out that in such cases, as for example in diphtheria, malignant scarlet fever, cancrum oris, hospital gangrene &c., these surfaces react on the system by auto-inoculation. I believed then, as I do now, that the specificity of many constitutional diseases and of their local manifestations is due to the formation of intermediate compounds or leucomaines, and that these are rendered innocuous by speedy oxidation, whereby they are reduced to ultimate binary compounds (*vide* my work on "Kochspiel"). The persistence of suppuration of a destructive character often is thus not due to spores, which are concomitant, accidental or consequential, but to intermediate alkaloidal bodies; and wounds are thus deodorised and rendered healthy by the application of oxidising agents, oxygen being nature's deodorant *par excellence*. This practice rests on a scientific basis and not on a visionary and delusive theory such as the germ theory, which has done so much to bring ridicule and contempt on medical science. Oxygenated water is now largely used in France as an application to wounds, and it is for the reasons above stated that permanganate of potash and like agents are so efficacious in the treatment of putrid wounds or fetid suppurating surfaces. I find also in the *Medical Annual* that Guyon recommends a solution of perchloride of mercury in cases of cystitis and that his patients were greatly benefited thereby. I used perchloride of mercury solution in the treatment of cystitis over twenty years ago, and in my work on "The Functional Diseases of the Urinary and Reproductive Organs" I have described how salivation was thus accidentally caused. From the same work I gather that Dr. Stuver uses bichloride of mercury in gonorrhœa. In a paper on the treatment of this affection[1] I recommended bichloride of mercury solution (1 gr. to 8 oz.). Dr. Stuver uses 1 gr. to 6 oz. I have no hesitation in saying that this strength is excessive; the solution employed should be much weaker.—I am, Sirs, yours faithfully,

D. CAMPBELL BLACK, M.D.,
Professor of Physiology in Anderson's College Medical School.

Glasgow, July 15th, 1893.

"THE RAMSGATE MYSTERY."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of the 15th inst. I think you are hardly fair in your comment on the Ramsgate murder case to the medical men first called in. In the first place, you say we (Dr. Fox and Mr. Cotton) formed our opinions as to the time of death by the coldness of the deceased's hands, neglecting to mention the face, neck, ears and nose. As a matter of fact, we laid no weight at all on the temperature of the hands. In the next place, all the experiments (thermometric) that have been made on dead bodies with a view of ascertaining the rate of cooling, have been made on subjects who have died natural deaths in hospitals and been removed from there to a cold dead-house, covered only by a sheet. Now I ask in all fairness could you compare thermometric experiments made in such cases with those made on a person killed suddenly, fully clothed, in a very small room (ten feet by six), on an excessively hot day, door and windows being closed? The deceased could only have been dead two hours and twenty minutes when I saw her, and under the above circumstances I do not see where the difficulty of approximately fixing the time of death lies. The defence sought to prove that death took place at 2.45. In that case I was only fifteen minutes out. Hoping you will be kind enough to publish this, I remain, Sirs, yours truly,

Vale-road, Ramsgate, July 16th, 1893. C. N. FOX.

*** Our annotation was written upon the facts as published in daily contemporaries. We agree with our correspondent that too much reliance should not be placed on thermometric registers; at the same time when such are taken as bases on which to found hypotheses the best obtainable evidence should be secured. What we wrote respecting the hands would apply with equal force to the face, neck, ears and nose. We did not question the *bonâ fides* of the medical witnesses on either side, nor did we attempt to compare the relative value of their opinions. Our contention was that in a criminal case the same latitude should be extended to witnesses for the defence as to those engaged by the prosecution.—ED. L.

FIFTEEN TIMES TWINS.

To the Editors of THE LANCET.

SIRS,—In the course of insurance work I have lately met with some details of family history which, I think, may interest and perhaps surprise some of your readers. The proposer stated that her father died at the age of eighty; that her mother was alive at the age of seventy-nine; that she had four brothers and four sisters alive and in good health; that her mother had "had thirty-three children, fifteen times twins," and that "twenty-four died under six months old." From personal knowledge I cannot vouch for the truth of the above statements, but they came to my notice on a serious business form, which was signed by the proposer and contained a solemn declaration that she believed in the truth of her statements and agreed that they should form part of the basis of contract. I may also add that none of the accompanying documents threw any doubt upon the genuine nature of the proposal, although my first impression was that the story of "fifteen times twins" might be a poor attempt at a joke. I am, Sirs, yours truly,

NESTOR TIRARD.

Weymouth-street, Portland-place, July 17th, 1893.

SO-CALLED "VILLOUS CANCER OF THE BREAST."

To the Editors of THE LANCET.

SIRS,—My attention has lately been called to a paper on this subject by Mr. Bowlby in THE LANCET of June 10th which appears to require brief notice from me. It is a repetition of an essay published in 1888, with some trifling additions. Mr. Bowlby says that at that time only six isolated examples of this disease had been recorded in English literature. Herein he is certainly in error, for Mr. Bryant's book on Diseases of the Breast, published in 1887, contains this number, and I can cite over a dozen different cases from other sources, while from French and German literature I have gleaned more than another dozen, all published prior to 1888. My attention was first specially directed to this subject in 1883, when I met with two instances of the disease—one in a male, the other in a female—of which I published an account in the Middlesex Hospital Reports for 1883, and subsequently I met with a third case, an account

[1] Brit. Med. Jour., April 23rd, 1870.

of which appears in the Hospital Reports for 1889. Most of the specimens of this disease exhibited at the Pathological Society during a period of ten years came under my notice, as well as several others. When collecting materials for an essay on Cancer of the Male Breast based on the records of 100 cases, which was published in THE LANCET of Aug. 10th, 1889, I found recorded, as there mentioned, half-a-dozen examples of duct cancer of the *male* breast, all of which were published prior to 1888, with none of which Mr. Bowlby appears to be acquainted. The foregoing and some cases subsequently published are the data on which my description of the disease in THE LANCET of April 16th, 1892, is based. When Mr. Bowlby has corrected his own work by comparing it with that done by others he will, I think, be in a better position to appreciate the correctness of my classification of the so-called villous duct cancers into *simple papillomas* and *tubular cancers* than he now is. At any rate an exhaustive examination of the subject has convinced me that it really is so.

I am, Sirs, yours faithfully,

Preston, June 24th, 1893. W. ROGER WILLIAMS.

"THE USE OF REPEATED FRACTIONAL DOSES OF CALOMEL."

To the Editors of THE LANCET.

SIRS,—I read with pleasure in THE LANCET of July 1st Dr. Chapman's article on the "Use of Repeated Fractional Doses of Calomel" in gastro-intestinal catarrh. For the last few years I have exhibited calomel in a similar manner with gratifying results; but lately I have substituted liquor hydrargyri perchloridi in three minim doses, with, I think, equally favourable results in children, especially when combined with half-minim doses of ipecacuanha wine. As a rule this combination acts admirably, the vomiting ceasing and the stools rapidly assuming a more normal colour and smell. I find children much prefer the mixture to powders, and where medical men do their own dispensing the saving in time is obvious. I am, Sirs, yours truly,

Harrow-road, W., July 18th, 1893. P. GARDINER, M.B. Glas.

"MEDICAL AID ASSOCIATIONS."

To the Editors of THE LANCET.

SIRS,—I see that Mr. Clement Sers somewhat misunderstands my position. With respect to the regular clubs, such as the Foresters and Oddfellows, we have no remedy except by declining to serve them. For the most part, however, they were not so much abused and they did not include wives and children. These clubs are now the backbone of medical aid associations and have gone from us. There are left provident dispensaries and private clubs. Provident dispensaries have, or ought to have, a wage limit and a provision for protest on the part of the medical attendant. Private clubs are in our own hands, as we can make our own rules. In this town I have initiated a system of provident medical aid which includes all the practitioners as its staff, and of which I enclose a copy of the rules. I do not pretend that it is a perfect solution of the difficulty; but I think it suggests the way in which this question can be most practically dealt with. I am, Sirs, yours truly,

Loughborough, June 10th, 1893. J. B. PIKE.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Gorton Sewage Works.

THE decision of the Local Government Board has at length been received and the Gorton local board are to spend a large sum of money in the erection of works for the treatment of their own sewage. It was shown at the recent inquiry that this could be done, both more economically and with far less risk of nuisance, by the simple expedient of incorporating outer Gorton with the city of Manchester, of which community it undoubtedly forms a part, although unfortunately it is under separate local government; it appears, however, to be the policy of the Local Government Board to sanction the perpetuation of petty autonomies rather than to bring pressure to bear upon districts like outer Gorton and compel them to join well-equipped and capable authorities like that of Manchester. It is more than probable that when the sewage works come into operation the city corporation may find it necessary to keep a watchful eye on the proceedings of the local board for the protection of the adjoining area of Manchester.

The Diarrhœa Season.

At the close of the week ending July 1st the earth thermometer at a depth of four feet from the surface indicated a temperature of 57·5° F., and the deaths from diarrhœal diseases during that week numbered 59, being greatly in excess of the average. In the course of the subsequent fourteen days the four-feet temperature has steadily risen, until, on Saturday last, it attained the unusual height, for the season, of 59·3°. The mortality from diarrhœa has increased *pari passu* with this rise of the earth temperature, the weekly numbers of diarrhœal deaths during the week ending the 8th inst. being 75, and in the week ending on Saturday last no fewer than 87 deaths were recorded, as many as 77 of latter being amongst infants under one year old. The deaths specifically referred in the death certificates to diarrhœa, however, do not appear to represent the whole of the mortality caused by the excessive heat of recent weeks; on the contrary, I find from the official returns that during the last fortnight alone no fewer than 52 additional deaths were attributed to gastro-enteritis or some other disease of a kindred nature to summer diarrhœa, although, of course, these deaths are not returned under the latter heading. The gross death-rate in the city of Manchester during the last fortnight has exceeded 31 per 1000, although the number of deaths from causes other than diarrhœa has been considerably below the average.

The Small-pox Epidemic.

The decline in the weekly number of cases of small-pox referred to in my last letter has happily continued throughout the period which has since elapsed, only two or three cases per week having been notified here since the week ending June 24th. Fresh cases, however, continue to be reported in towns which are inconveniently close to Manchester, amongst which Oldham and Chadderton may be mentioned as still apparently suffering considerably from the epidemic. The cases still remaining in the hospitals at Monsall and Clayton Vale are about eighty in number, not all of which have been sent to hospital from districts within the municipal boundaries. Although the epidemic now seems to be waning in Manchester it is impossible, unless we are to disregard the lessons of previous epidemics, to banish from our minds the strong probability that a recrudescence of small-pox may take place later in the present year, or during the spring of the coming, year. It is to be hoped, therefore, that our city fathers will take care to be prepared for such an event beforehand, so that should a recrudescence unfortunately take place next spring it may not find us unable to isolate a reasonable number of cases, as was the case at the commencement of the present epidemic. The somewhat expensive teachings of the recent prevalence of small-pox will not have been thrown away if it warns those in authority that the truest economy consists in being always prepared to isolate the first cases of infectious sickness and thus to prevent epidemics from making headway amongst the community.

The Ladywell Sanatorium.

At a recent meeting of the Salford County Council the accounts in connexion with the Ladywell Sanatorium were discussed. It appears that the total cost of the buildings, land &c is between £65,000 and £70,000, or something like £300 per bed. At the time when the hospital was opened for the reception of patients a favourable opinion as to its general arrangements and adaptability for the purposes of an establishment for the isolation of infectious diseases was expressed in these columns. The experience gained since the opening of the hospital only tends to confirm the good opinion formed on that occasion. It is, perhaps, not too much to say that amongst the many well-equipped and well-planned large fever hospitals which have been constructed in the provinces within the last ten years there is, perhaps, not one which can be regarded as being superior to the Ladywell Sanatorium. It will be remembered that this institution is intended for the isolation of cases of fever only, a clause having been agreed to by the corporation the effect of which will be to prevent the future

use of this hospital for the treatment of patients suffering from small-pox. In the course of the present epidemic of small-pox, which, it is hoped, is now drawing to a close, the Salford corporation have made temporary provision for cases in the neighbourhood of Modewheel, a series of corrugated iron hospital huts having been erected there, which have, it is believed, answered the purpose to the satisfaction both of the medical attendants and the corporation.

July 19th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

The Ambulance Review at Gosforth Park, Newcastle-on-Tyne.

THE arrangements for the great ambulance review which is to be held at Gosforth Park on the first Saturday in August are now nearly completed. The men taking part in the review will be mustered in companies of 100, each company being under the command of a Volunteer surgeon-captain, and it is expected that at least eight companies will be placed in the field. An interesting item of the programme will be an exhibition of life-saving by about 100 members of the Tynemouth Volunteer Life Brigade under the command of Alderman J. Foster Spence, mayor of Tynemouth. A party representing shipwrecked mariners will be rescued from the island in the middle of the lake by means of the rocket apparatus. A good feature of the day's proceedings will be that the proceeds of the review will be devoted to local charities.

Durham College of Science.

Much regret is felt in the north by the announcement that Professor Garnett has resigned his chair as principal in the Durham College of Science, Newcastle-on-Tyne. He has accepted the post of Technical Adviser to the Technical Education Board of the London County Council. It is needless to say that the council of the College have received his resignation with deep regret—regret which will be shared by all the professors, teachers and students, and by all connected with the higher education in the north. Owing to the fact that some of the medical lectures are given at the Durham College, Professor Garnett has been in frequent touch with medical students, who feel that they will sustain a loss in his removal. Professor Garnett, however, will not leave before the College is in full working order; and as regards the success of the College it may be mentioned that on some occasions more than one thousand pupils have been in attendance on one day.

Small-pox in the County of Durham.

At the last meeting of the Leadgate local board Dr. G. Renton, the medical officer of health, reported that five cases of small-pox had appeared. The patients had been removed to the Fever Hospital and were progressing satisfactorily.

The late Rainfall in the City of Durham.

Mr. Carpenter of the Durham Observatory, in reference to the rainfall at Durham on July 8th, says that it was the largest fall with one exception that has been recorded for any one day for at least forty years. During the thunderstorm in the afternoon 2·052 in. of rain fell, and 0·365 in. fell during the storm in the evening, making together 2·417 in., whilst as regards heaviness of downpour there has been none to equal it in the period above mentioned.

Sunderland.

The Local Government Board has suggested the erection of a new workhouse infirmary, the estimated cost of which is £20,000. The matter is still under the consideration of the guardians. The new infirmary will be built on the pavilion system—in blocks—with separate administrative department and lying-in and isolation wards. The committee have visited various workhouse hospitals in different parts of the country and seem to be most favourably impressed with the principle of that at Dewsbury.

Newcastle-on-Tyne, July 19th.

MEDICAL MAGISTRATES.—Mr. John R. Thomson, M.D., L.R.C.S. Edin., F.R.C.P. Lond., has been placed on the Commission of the Peace for the county of Hampshire. Mr. Frederick H. Tinker, L.R.C.P., L.M. Edin., M.R.C.S., has been placed upon the Commission of the Peace for the borough of Hyde.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Medical Education of Women in Edinburgh.

I mentioned some weeks ago that the managers of the Royal Infirmary of Edinburgh had decided to withdraw from women the privilege of obtaining clinical instruction in the infirmary, as it was expected that the authorities of Leith Hospital would so enlarge and rearrange that hospital that it would be available for the purposes of clinical study to all the women students. The Leith Hospital authorities, after considering the question, have decided, however, that they could not afford to make the requisite extension. This necessarily reopened the matter at the Royal Infirmary and much public feeling has been aroused respecting it. The question was practically whether Edinburgh was or was not to take part in the medical education of women, and, indeed, some of the students had already begun to contemplate going elsewhere. Yesterday, at the meeting of the managers, it was decided to continue the present arrangements for women students at the infirmary and also to furnish the number of additional beds necessary to satisfy the examining boards. The Scottish Association for the Medical Education of Women have undertaken to supply money for furnishing the additional beds and it is expected that the hospital fees will soon cover the additional annual outlay. Hitherto the infirmary has only been open to one of the two medical schools for women in Edinburgh, but under the new arrangements the students of both schools will be received and they will be under the authority of the infirmary management and not of the authorities of the schools.

The Professional Examinations in Edinburgh.

On Monday the first professional examination commenced and the second will begin on Thursday. The session will end this week.

July 18th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Local Government Board.

THE annual report of the Local Government Board has not yet been issued, but I am able to state that for the year ending March 31st last the number of persons in receipt of out-door relief and in workhouses in Ireland was less by 3359 than during the previous year. The number of those who emigrated from Ireland, assisted by the unions, was only 237, costing £371, this being the lowest number so assisted since 1851, with the exception of the year 1862, when only 122 persons were aided to emigrate. The cost, however, in that year was £528.

Board of Superintendence of Dublin Hospitals.

The thirty-fifth annual report on the condition and management of the city of Dublin hospitals receiving Parliamentary grants has been issued this week. The hospitals inspected by the Board of Superintendence number nine and share between them £15,722 15*s.* 9*d.*, of which the House of Industry hospitals alone get £7472 15*s.* 9*d.* The board, considering the necessity of special or invalid cooking in order to promote recovery in a certain class of cases, have endeavoured to impress on the authorities the importance of having properly qualified cooks in hospitals to prepare such food; but they regret to state that in several institutions scarcely sufficient care is bestowed on this subject, which is in some cases even more important than the administration of medicine. An epidemic of cholera having prevailed during the year on the continent of Europe, and as several alleged cases had occurred in England, the board made inquiries to ascertain that due provision could be made for the reception and treatment of the first cases that might appear should the epidemic reach Dublin, and several institutions promised that a total of 150 beds could be allocated for the purpose required. The board point out the necessity of having an institution in connexion with the city hospitals endowed and equipped for pathological, chemical and bacteriological research and also remark on the advisability of having post-mortem examinations made under the supervision of skilled pathologists connected with the proposed institution. In the interests of justice all

necropsies in medico-legal cases should be specially conducted by these officers, and an ample supply of material would be available for systematic pathological teaching. During the year there were 10,371 patients under treatment in the wards, of whom 9072 left either cured or relieved and 462 died. Exclusively of the Hospital for Incurables the mortality was 4·61 per cent. as regards cases treated to a termination. The average annual cost per bed for maintenance was lowest in the Westmorland Lock Hospital (£14 3*s.* 11½*d.*) and highest in the Coombe Lying-in Hospital (£22 5*s.* 11½*d.*), whilst the average annual cost per bed for maintenance and for establishment charges was lowest in the Hospital for Incurables (£31 7*s.* 9½*d.*) and highest in the Rotunda Lying-in Hospital (£71 17*s.* 9½*d*). I shall defer any further observations on the report until next week.

Compared with the corresponding quarter of 1892 the returns of pauperism for the March quarter show a decrease of 384 in the average number of workhouse inmates on Saturdays during the quarter and a decrease of 3674, or 5·8 per cent., in the average number of persons on out-door relief.

Society of Public Analysts.

The annual summer meeting of the Society of Public Analysts was held on the 18th inst. at the Royal College of Surgeons, Sir Charles Cameron, President, in the chair. The President said this was the third occasion on which the summer meeting of the Society had been held in Ireland. On behalf of the local members he offered a cordial welcome to the members from the other side of St. George's Channel. The out-going President, Mr. Hehner, then took the chair to permit Sir Charles Cameron to read a paper entitled "The Results of the Working of the Adulteration Acts in Dublin." The first year after his appointment as city analyst 50 per cent. of the articles examined were adulterated; but after the passing of the Acts of 1872 the adulteration of many articles of food died out. Tea, flour, bread, mustard and whisky were now never found to be adulterated, and, with the exception of milk and butter, the food sold in Dublin was, with rare exceptions, pure—a fact which undoubtedly was attributable to the working of the Anti-adulteration Acts. Professor Tichborne read a paper on "Some Recent Improvements in the Babcock Machine," an instrument for estimating the butter-fat in milk analyses. Mr. A. W. Allen read a communication on "Vinegar, its Nature and Manufacture." In the evening a banquet, presided over by Sir Charles Cameron, took place in the Shelbourne Hotel.

Royal Hospital for Incurables.

Having regard to the large number of candidates who seek admission, the governors have decided to build another pavilion, to comprise two wards, for the accommodation of fifty additional patients. It is now in course of erection and it is expected to be completed in the spring of next year.

July 18th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Heatstroke.

IN spite of the high temperature of the last few weeks there have been few or no cases of heatstroke in Berlin. In the *Deutsche Medicinische Wochenschrift* of July 13th Dr. Kœfer writes on the subject of Heatstroke in which he speaks highly of the effects of chloroform, a treatment which, he adds, was recommended long ago by Dr. Barclay in the *Madras Medical Journal.*

The Water-supply of Berlin.

The new waterworks on the Müggelsee are now in full work. This allows the proper rate of filtration in the old works at the Stralauer Thor to be maintained, and, so far as any danger of infecting the water-supply is concerned, Berlin may be considered to be safe from an epidemic of cholera. The new filter beds are all covered in to protect them from frost and to prevent the occurrence of such an interference with the filtration as that which caused an outbreak of cholera in Altona in the early part of this year.

Secret Remedies.

Dr. Aronson's refusal to communicate the method of preparing the extract from serum by which he hopes to be able to cure diphtheria was the occasion of some further discussion at the meeting of the Berliner Medicinische Gesellschaft on June 14th. The Society did not enter upon any consideration of the merits of the preparation, and the President, Professor Virchow, repeated his previous declaration that, had he been aware of the object of the paper, he would not have allowed it to be read.

Acute Rheumatic Arthritis.

Dr. Sahli, in the *Deutsches Archiv für Innere Medicin* for July, discusses this disease in an interesting paper. He considers that it is probably an infectious disease, and in this connexion he remarks upon its acute febrile course and the difficulty of diagnosis between it and septic or pyæmic affections of the joints or even osteo-myelitis, and also comments on the frequent detection of staphylococcus in the vegetations in cases of post-rheumatic endocarditis (Birch-Hirschfeld, Mantel and others). He then describes a case of rheumatic fever in a girl of sixteen, being the second attack, which ended fatally, and how after death a yellow staphylococcus was found in the endocardial excrescences, synovial membrane, pericardium, pleura, swollen bronchial glands and in the blood of the left ventricle. Dr. Sahli has in several other cases cultivated a similar staphylococcus from fluid taken during life from inflamed joints and also from the blood of rheumatic patients.

Foot-and-Mouth Disease.

So many English medical men are more or less personally interested in agriculture that it may be allowable to notice here that in a publication which has just appeared Dr. Kurth of Bremen states his opinion that in a micro-organism which he calls "streptococcus involutus" he has discovered the cause of foot-and-mouth disease. This does not appear to be identical with the streptococcus described by Dr. Klein in the fifteenth annual report of the Local Government Board, 1885.

July 17th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Ainhum.

Until now ainhum has not been reported from Egypt, but Mr. Milton has seen one case in Cairo and Dr. Creswell has found a second at Suez. The latter is that of a negro slave from Suakin aged forty who has the disease well-marked in both little toes, having anæsthesia in one of them. He has been affected for three years and believes himself that it is due to working barefooted in salt. His general health is good, but his feet are worse in winter than in summer, though a few days' rest in bed are sufficient to relieve his pain.

Pellagra.

This well-known skin disease occurs every spring in Egypt, though it is only lately that it has been looked for and noted. The desquamation on the back of the neck and over a triangular patch on the chest uncovered by the collarless dress worn by the peasants is easily recognised, though the changes on the hands and feet may be somewhat masked by dirt. Pellagra has been seen in both sexes, but chiefly in men, and so far always in those from the villages of Lower Egypt. This is of interest because the peasantry of the Upper Nile live chiefly on the great millet or guinea corn, which is a cane-like corn-grass with a dense head of spikes bearing numerous small grains. This has no sheath and therefore can be dried easily. The natives of Lower Egypt, in addition to this, live during the early months of the year on the maize or Indian corn (well known in England) which is imported here from Syria, being originally a native of South America. The heads of closely packed grains the size of peas are enclosed in a sheath called the "cob," which prevents perfect drying and aids the formation of the fungus, which alone is necessary for the production of pellagra amongst the ill-nourished. It often happens in Egypt that a man is at the same time the prey of pellagra, farus, anchylostomiasis and bilharzia.

Veterinary Department.

Only nine years ago the Egyptian Government was so anxious to avoid multiplying the number of English officials that it actually paid a veterinary surgeon to return to England within a few days of his arrival here by special invitation; but matters have now so far improved that a second "vet." has now been imported in addition to the one who has done good work here since 1886. A project has also been submitted to the Council of Ministers for attaching a small veterinary class to the medical school. As many of the subjects to be

caught could be the same, and the services of the Government "vet." utilised without extra fees, no great expense need be incurred. A few donkeys would have to be bought for the dissecting-room and the stables of the Government would supply plenty of material for hospital treatment. There is a chance of this scheme being adopted, for one of the good points of Riaz Pacha is that he has the welfare of agriculture at heart, and none knows better than he that the native "vets." are absolutely useless. Twice before an animal department has been added to the School of Medicine at Cairo, once with a great flourish of French trumpets, but Egypt's chequered finances prevented a continuance of the scheme. Some mallein experiments have lately been carried on with success. Fourteen horses were in a stable with a glandered animal, and were therefore suspected. Seven of them gave no reaction after inoculation and are still healthy; but seven gave the typical reaction and were found when killed to have unmistakable glanders. Experiments here are made difficult by the fact that the Government provides no money for indemnifying owners in the event of a beast being killed as a precautionary measure and then being found not to be diseased.

RUSSIA.

(FROM OUR OWN CORRESPONDENT.)

The Poisonous Products of Preserved Fish.

THE Committee of the Caspian Fisheries has offered a prize of 5000 roubles (£500) for the best treatise upon "fish poison." The following are the conditions under which the prize is offered: Each competitor must (1) determine by exact experiment the physical and chemical nature of the poison; (2) study, by experiments on animals, the action of the poison on the heart, circulation, alimentary organs and nervous system; (3) determine the rapidity of absorption of the poison by the alimentary canal; (4) investigate and describe the signs by which a poisonous may be distinguished from an innocuous fish; (5) indicate the means for preventing the development of the poison in fish; and (6) state what are the antidotes and the best means of treatment of persons suffering from the effects of the poison. Dissertations, which may be in Russian, Latin, French, English or German, and either in manuscript or printed, must be presented before Jan. 1st, 1894. They must be sent to the Ministry of Imperial Domains. They will be submitted to a special commission, whose judgment will be pronounced before Jan. 1st, 1895. Inability to decide the fourth and fifth points will not disqualify a candidate altogether. In the event of no thesis being received which shall solve the main points of the problem, the accumulated interest for six years on the original sum will be given for that thesis which shall most nearly establish the nature of the poison.

Cholera in Russia.

The last returns of the cholera epidemic, though they include an increasing number of governments, do not indicate a repetition of last year's epidemic—at any rate, not in the same proportions as it attained last year. Between June 19th and 25th (July 1st and 7th) a few cases were reported from the governments of Orel, Stavropol, Kursk, Saratof, Tula, Viatka and Kherson. From Bessarabia 35 cases and 15 deaths were returned, and from Podolia—where the disease still continues to be more severe than in any other part of Russia—as many as 301 cases and 100 deaths were reported for the week from June 6th to 12th (18th to 24th). So little apprehension of a severe outbreak is felt by the authorities that fifty students who were detained at the Army Medical Academy in St. Petersburg in readiness to be sent to infected districts have now been conditionally allowed to return to their homes.

Hygienic Exhibition.

The first All-Russian Hygienic Exhibition has been open for some weeks. Like most other exhibitions it was inaugurated in a very unfinished condition, but it has now arrived at a state of order and is well worth a visit. The efforts of Dr. Zdekauer, the president, and the committee of the National Health Society to make the public acquainted with contemporary methods in the sciences of hygiene and sanitation must be held to be crowned with success. Whether the much to be desired collateral aim of rousing the public interest to the importance of these subjects will be realised only time can show; but it will not be the fault of the organisers of the exhibition if this end should not be attained. In these different sections a vast number of objects of greater or less interest have been brought together. In general it may be said that the exhibits are, if the expression may be permitted, "up to date"; but there is one section that calls for more than this general statement and demands detailed notice. In the section devoted to railways are shown six carriages adapted for the conveyance and treatment of the sick or wounded in peace and in war, one for the carriage of cattle, two for the carriage of meat and fruit respectively and one for purposes of disinfection. In a carriage sent by the Moscow-Brest Railway much space is saved by the ice safe being sunk in the floor. This carriage is for the conveyance of the wounded. The eight "beds" are really canvas stretchers placed upon carriage-spring supports, and by an ingenious arrangement of lateral springs all possible chance of jarring from the motion of the carriage is avoided. On the Catherine Railway two hospital carriages have been in use for the benefit of the workmen upon the line for the past three years. The railway runs through a thinly inhabited "steppe" country in the south of Russia and passes through no large town save that of Ekaterinoslav. A carriage shown by the Kursk-Kharkof Railway is intended for immediate despatch from a central point to the scene of a railway accident. It is provided with beds, stretchers, an operating table and all surgical necessities. It is lighted by means of the electric light. The remaining carriages do not call for special notice with the exception of that devoted to disinfection. Briefly, this consists of one compartment for dirty linen, one for clean linen and a central disinfecting chamber into which steam is conducted by a pipe from the engine. The original promoters of the exhibition have been well supported by the various Ministries, by the Army Medical Academy, by the Russian Red Cross Society and by a large number of other public and influential bodies, most of which contribute exhibits of interest.

St. Petersburg, July 3rd (15th).

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination of the Board at a meeting of the Examiners on Wednesday, the 5th inst.:—

Anatomy and Physiology.—**Fermin R. Orella, student of Cooper Medical College, San Francisco; Francis M. Seal, Herman A. Günther and Joseph Shardlow, University College Hospital; Charles Bramwell and Harry Dingle, King's College; Hugh W. Silver and William Wallis, Charing-cross Hospital; Percy A. Palmer, St. Bartholomew's Hospital; Reginald A. Cooper, St. George's Hospital; Henry E. Haynes and Justin T. Vullaimy, St. Thomas's Hospital; F Hallam Hardy, Thomas W. Stanton and William W. Farnfield, Guy's Hospital; and Charles W. Seccombe and Ernest G. Grove, St. Mary's Hospital.**

Anatomy only.—**Charles G. Moffitt, University College Hospital; Robert G. Knox, King's College; and Alfred Woollcombe, Albert E. Hodgkins and Philip W. James, St. Bartholomew's Hospital.**

Physiology only.—**Geoffrey E. Gardiner and Huntley Clarke, St. Bartholomew's Hospital; Frederic Golding-Bird, Guy's Hospital; Hubert O. B. Browne-Mason, St. Mary's Hospital; and Walter Dymock Perry, Middlesex Hospital. Three candidates were referred in Anatomy only, six in Physiology only, and eleven in both subjects.**

Passed on the 6th inst.:—

Anatomy and Physiology.—**N. Seymour Bickford, Charing-cross Hospital; Herbert Cardin, Percy G. Temple and William R. Davies, Guy's Hospital; Adolf Tenison, Frederic A. St. John and Francis J. Pearson, St. Mary's Hospital; William H. Thorman, Cambridge University and St. Thomas's Hospital; H. Merriman Cooper, St. George's Hospital; J Vigers Worthington, London Hospital; J. A. Percival Barnes, S. Longhurst Box, St. Bartholomew's Hospital; Ernest G. D. Pino, University College Hospital; and George P. Ambrose, Westminster Hospital.**

Anatomy only.—**J. Averell Alston, University College Hospital; Frank E. Meade, Yorkshire College, Leeds, and St. Bartholomew's Hospital; and Ellacott L. Ward, Middlesex Hospital.**

Physiology only.—**Frank H. Nimmo and Herbert G. Berry, St. Bartholomew's Hospital; E. Jermyn Hynes, J. Garbt Wallis, London Hospital; and William Henry Pearse, Middlesex Hospital. Three candidates were referred in Anatomy only and three in Physiology only.**

Passed on the 7th inst.:—

Anatomy and Physiology.—**H. Ward Evans, London Hospital; Herbert E. Izard, Frederick W. Ta Bois, Arthur Earnshaw and Charles E. S. Watson, Guy's Hospital; John H. Murray, Alfred C. J. H. Hackney, University College Hospital; Frederick Bennetts, St. Mary's Hospital; John Howard Jones and Albert J. Riddett Middlesex Hospital; David G. Kennard, Westminster Hospital;**

Douglas H. F. Cowin and Richard S. C. Edleston, St. Bartholomew's Hospital; and Cyril J. Wedemeyer Grindrod, St. George's Hospital.

Anatomy only.—Percy M. Brittain, St. Bartholomew's Hospital; Augustus J. Wernet, Bradney Instone and Charles H. Murray, Guy's Hospital; John W. Fordham, London Hospital; and Neville H. Austin and Edmund W. Herrington, St. Mary's Hospital.

Physiology only.—William L. Hughes, Richard Hedden and Edmund S. Hall, Guy's Hospital; Frederick A. H. Clarke and Edward J. Deck, St. Bartholomew's Hospital; Pelham Wykesmith and Carl Anders Ljunggen, St. George's Hospital, and Edmund E. Lloyd, St. Mary's Hospital. Five candidates were referred in Anatomy only, seven in Physiology only, and eight in both subjects.

Passed on the 10th inst.:—

Anatomy and Physiology.—T. O'Neill Roe, University College Hospital; T. Clifford Last, St. George's Hospital; Charles Farrant, Westminster Hospital; Harold Weeks, John H. Tomlinson, Ernest G. Simmons, Norman S. Grosvenor and Evan Lloyd, St. Bartholomew's Hospital; Edward L. N. Hopkins, Middlesex Hospital; Herbert Alexander and Thomas Davies, Guy's Hospital; Mathias Max Bernstein, Imperial University of Moscow; William A. Montgomery, St. Thomas's Hospital; and J. Buchanan Reid, Trinity College, Toronto.

Anatomy only.—Alexander H. Finch and Ernest A. Prebble, Guy's Hospital; Edward A. Weber and Herbert J. Godwin, St. Bartholomew's Hospital; W. Brinton Price, St. Thomas's Hospital and Mr. Cooke's School of Anatomy and Physiology; and J. Herbert Fergusson, St. George's Hospital.

Physiology only.—Everett Millais and George H. Alcock, St. Thomas's Hospital; Herbert E. Goulden and William J. A. Kirby, Middlesex Hospital; T. J. Augustus Tuik-Hart and W. Francis Reckitt, Guy's Hospital; Sydney V. H. Underhill, St. George's Hospital; W. Watson Walker, St. Mary's Hospital; Harold Jackson, Yorkshire College, Leeds, and St. Mary's Hospital. Eight candidates were referred in Anatomy only, seven in Physiology only and nine in both subjects.

ROYAL UNIVERSITY OF IRELAND.—The following gentlemen have passed the First Examination in Medicine of the University:

Richard Ahem, William L. Armstrong, Alfred Birmingham, Robert T. Booth, William Cahill, John A. Clarke, John G. Corry, George Douglas, James Duff, John R. Gillespie, William Hartnett, Bernard P. Healy, George H. Henry. Moses Henry, Edmond Heskin, George A. Hicks, John P. Higgins, George A. Hogg, Francis S. Irvine, Andrew Johnstone, Thomas Kennedy, John J. Kinsella, Samuel McCann, Oliver E. McCutcheon, Charles E. McDade, Alexander McKay, Thomas McKelvey, Maurice McSherry, Alexander W. Montgomery, Charles J. Moore, Denis Nyhan, Thomas O'Hagan, William Porter, James Ritchie, Lewis Robinson, Thomas S. Ross, John Scott, Robert Shaw, William S. Shaw, Joseph K. Sinton, James H. Stewart, Sydney Waddell, and James E. Whyte.

The following candidates may present themselves for further Examinations for Honours in the subjects mentioned after their names:

Birmingham, Zoology and Physics; Booth, Botany and Zoology; Cahill, Botany; Corry, Botany, Chemistry and Physics; Douglas, Botany, Chemistry and Physics; Gillespie, Chemistry and Physics; Hartnett, Botany; Healy, Zoology and Chemistry; George Henry, Botany; Moses Henry, Chemistry and Physics; Heskin, Physics; Higgins, Botany and Physics; Kennedy, Chemistry; Kinsella, Botany and Zoology; McCann, Zoology; McCutcheon, Botany and Physics; McKelvey, Botany, Chemistry and Physics; Montgomery, Botany, Zoology, Chemistry and Physics; Moore, Zoology and Physics; Nyhan, Chemistry; O'Hagan, Zoology; Robinson, Botany; Ross, Botany; Scott, Botany, Zoology and Physics; Stewart, Chemistry and Physics; and Waddell, Physics.

THE DENTAL HOSPITAL OF LONDON.—Professor Sir W. H. Flower presided on Friday, 14th inst., at the annual conversazione and distribution of prizes of the Dental Hospital of London, held in the Royal Institute Galleries, Piccadilly. In his address to the students Sir W. H. Flower said that largely owing to Sir J. Tomes, the dentist had acquired a legally established and protected professional status, which was not the case forty years ago, when he (the speaker) was a student.

WILLESDEN COTTAGE HOSPITAL.—On Tuesday Miss Balfour, accompanied by the Right Hon. A. J. Balfour, M.P., performed the ceremony of opening this hospital, which has been erected by Mr. Passmore Edwards at an expenditure of £2000 and endowed by funds raised in the district. The building is situated in Harlesden-lane, in the centre of the Willesden district, and will supply a long-felt want in this populous neighbourhood. It contains two wards, each provided with four beds, together with a paying ward.

DERBY AND DERBYSHIRE CONVALESCENT HOME.—At the annual meeting of this institution, held at Matlock on July 12th, the report showed that 196 patients had been received into the home during the year, each staying an average of about eighteen days. Regret was expressed that the offer of Mr. Taylor of Ilkley of some valuable property for a children's holiday home had had to be declined. Subscriptions for the year amounted to £225. The patients' payments reached the sum of £135. Lord Scarsdale consented to act as president of the institution in place of the late Sir William Evans.

COTTAGE HOSPITAL AT ST. HELEN'S.—A new wing to this hospital to accommodate thirty-two beds is about to be erected at an estimated cost of upwards of £2000.

SIR DONALD CURRIE, M.P., has given £500 towards the £3000 required to complete the building fund of the Poplar Hospital for Accidents.

BEQUEST.—The sum of £3919, Consols, left under the will of the late Mr. Richard Devereux of Wexford, has been transferred to the Jervis-street Hospital, Dublin.

METROPOLITAN HOSPITAL SUNDAY FUND.—The amount received at the Mansion House at the time of our going to press is £37,500.

STRIKE OF PHARMACISTS.—The pharmacists in Spain have been seriously aggrieved by a new law affecting their taxation and are organising a movement to close their shops.

THE ROYAL BRITISH NURSES' ASSOCIATION.—On Monday evening last a banquet took place at the Hôtel Métropole, attended by a distinguished company, to celebrate the recent grant of a Royal Charter to the association. Sir William Savory presided and in proposing the toast of the evening referred to the legal status and the obligations which the Charter imposed upon the association. But, as heretofore, it would adequately carry on the task of good work before it. Mrs. Bedford Fenwick acknowledged the toast. Several other toasts followed.

PROSECUTION UNDER THE NOTIFICATION ACT.—At the Evesham Petty Sessions on the 10th inst., Ann Reeves was summoned for neglecting to notify that her granddaughter, Sophia, was suffering from scarlet fever. Mr. T. J. Blanchard, sanitary inspector, deposed that on June 2nd he visited defendant's house. He found a girl desquamating after scarlet fever, and two boys from the house were attending school. Mr. G. Fosbroke, M.O.H., deposed that in consequence of the defendant's neglect five other cases occurred in the village of Harvington. The defendant was discharged on a plea of ignorance as to the nature of the law.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly Court of Directors of this Society was held on Wednesday, July 12th. The chair was taken by the President, Sir James Paget. Six new members were elected and the deaths of three members were reported. The death of a widow in receipt of grants was announced and an application for relief was read from a widow for herself and daughter, and a grant was made. It was resolved to distribute a sum of £1281 amongst the fifty-seven widows, eleven orphans now on the funds and the four orphans on the Copeland Fund. The expenses of the quarter amounted to £51 5*s.* 6*d.*

THE DISSEMINATION OF INFECTION.—The St. Pancras Vestry on Wednesday, July 19th, appeared against a woman at the Marylebone Police-court, who was charged, on a summons, with exposing her son, aged four years, at a time when he was suffering from scarlet fever. Evidence was given showing that after the child had been certified to be suffering from scarlet fever his mother dressed him and took him out. A constable deposed that he had found the prisoner in an intoxicated condition in a public-house with the child in her possession. It was raining and the child's clothes were wet through. After being persuaded to go home she appeared on the balcony with the child in no way protected against the wet weather. The prisoner was fined £3 3*s.*, or fourteen days' imprisonment as an alternative.

THE SALE OF SAUSAGES.—On Monday, July 10th, the case of Regina *v.* Heathcote and others (*ex parte* Blaker) came on for hearing before Justices Cave and Wright, sitting as a Divisional Court. Mr. Charles Blaker, sausage manufacturer, Brighton, having previously been convicted by the stipendiary magistrate for having in his possession meat unfit for human food, application was made to the magistrate on behalf of Mr. Blaker for a special case on the ground that Mr. Blaker, having had no personal knowledge that the meat was bad, ought not to have been held responsible for the faults of his servant. As the magistrate declined to grant a special case application was made to the High Court for a *mandamus* to compel the stipendiary to state a case and a rule *nisi* was granted which now came on for argument. Mr. Justice Cave said that the rule would be made absolute for a special case.

UNITED HOSPITALS SWIMMING CLUB.—The second annual competition took place in the Kensington Baths on Monday, the 17th inst., before a small attendance of spectators. The open scratch race (194 yards) was won by A. Rouillard of St. Thomas's Hospital, W. F. Bennett, St. Bartholomew's Hospital, being second. Middlesex Hospital obtained all three prizes in the eighty-seven yards handicap race, A. P. Birch, E. O. J. O'Malley, and C. P. Allen being the successful competitors. The obstacle race was won by W. R. Wood of Guy's Hospital, and the diving competition by H. W. Dudgeon, also of Guy's Hospital. The water polo cup went for the second time to St. Bartholomew's Hospital, who defeated Middlesex Hospital by eight goals to one. The prizes were distributed by the president, Mr. B. Pitts, F.R.C.S. Mr. V. E. Collins, of Guy's Hospital, acted as secretary.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Registration of Midwives.

THE Select Committee of the House of Commons on this subject do not propose to call any more witnesses and are now engaged in the preparation of their report.

Margarine and Food and Drugs Act.

In reply to a deputation of members of Parliament which waited upon Mr. Mundella on Tuesday, July 18th, urging him to obtain the second reading of Mr. Horace Plunkett's Margarine Act (1887) and Sale of Food and Drugs Act (1875) Amendment Bill, in order that it might be referred to a select committee, the President of the Board of Trade said he was able to hold out no hope that the Government would give facilities for the passage of the measure. He, however, promised to consider favourably a motion for the appointment of a select committee to inquire into the working of the Margarine Act of 1887.

THE HOUSE OF LORDS.

THURSDAY, JULY 13TH.

The Infectious Hospitals Bill.

This Bill passed through Committee without amendment.

FRIDAY, JULY 14TH.

Railway Servants (Hours of Labour) Bill.

The Earl of Wemyss, remarking on this Bill, said that the railway authorities would have preferred the Bill in the form in which it left the House of Lords; there was no desire, however, to enter into conflict with the other House and they therefore accepted the Commons' amendments to the Bill.

The Commons' amendments were accordingly agreed to.

MONDAY, JULY 17TH.

London County Council (General Powers) Bill.

Lord Hobhouse moved the reinsertion of the clause struck out by the committee providing that the Thames Conservancy Board should be increased from twenty-three to twenty-seven members and that four members should be elected to the board by the London County Council. The Thames flowed through London for twenty miles; two millions and a half of Londoners used its waters for domestic purposes, and its management therefore deeply affected the health and convenience of the whole community. The request of the County Council that it should be represented on the Conservancy Board was likely to conduce to the public welfare. There was not the smallest pretence for saying that the County Council had set up a claim to exclude anybody. All they sought was to have a voice in this affair which so concerned them.

The Duke of Richmond and Gordon objected to the amendment of the noble lord. The House ought not to refuse to endorse the decision of the committee unless it could be shown that there were strong grounds for doing so. The Thames Conservancy Board had 200 miles of river under their control and no fault could be found with their work.

The Earl of Morley said the question was whether the House was prepared to cancel the decision of its committee. That course was taken only when it was quite clear that important evidence had been unheard or that by some accident a decision had been given against the evidence. Nothing of the kind was alleged in the present case, and it would be a mistake if their lordships reversed the decision of the committee on a mere *ex parte* statement.

The amendment was withdrawn and the Bill was read a third time and passed.

TUESDAY, JULY 18TH.

Millbank Prison Site.

The Earl of Meath opened a discussion on the disposal of the Millbank Prison site. He wished to know whether the Government had offered part of the site to the London County Council for the erection of artisans' dwellings whilst the Westminster Vestry were anxious to obtain the site for an open space.—The Earl of Stamford argued that as the prison was considered one of the most unhealthy prisons in England it was hardly the place to select for a site for artisans' dwellings.—The Marquis of Salisbury thought it was more important that men should have wholesome and decent dwellings than that they should have open spaces to walk in.—The reply of the Government was postponed till a later date.

THE HOUSE OF COMMONS.

THURSDAY, JULY 13TH.

Indian Currency.

Sir J. Lubbock asked several questions on this subject and was replied to by Mr. G. Russell and the Prime Minister to the effect that it had already been decided to adopt a gold standard in India, and the measures already taken have that end in view, and that the annual financial statement would afford Members an opportunity of expressing their views upon the action of the Government.

Housing of the Working Classes.

The Housing of the Working Classes Act (1890) Amendment Bill passed through Committee.

MONDAY, JULY 17TH.

Opium Dens in the Metropolis.

Mr. Asquith, answering Mr. S. Smith, said that the Commissioner of Police had informed him that there were absolutely no grounds for the assertion that English girls frequented those opium dens. The police had no power to suppress opium-smoking.

Barrack-room Improvements.

Mr. Hanbury inquired of the Secretary of State for War what steps had been taken to carry out the recommendations of the Wantage Committee with regard to barrack-rooms.—Sir J. Hibbert replied that with the exception of hot water for ablution rooms the improvements recommended were being carried out in new barracks and in any old barracks which might be reconstructed.

Alabone v. Morton.

Sir C. Cameron asked the Home Secretary whether, considering the nature of the fraud and false pretences referred to by the learned judge in the case of Alabone *v.* Morton, he would direct the steps recommended by him to be taken.—Mr. Asquith thought it was not quite clear whether the Society of Apothecaries intended to use their power, but instructions had been given that the matter should be laid before the Public Prosecutor with a view to his taking proceedings either independently or in conjunction with the Society.

Public Health Act Amendment Bill.

The order for the second reading of this Bill was read and discharged and the Bill was withdrawn.

TUESDAY, JULY 18TH.

Police Distraint for Non-compliance with Vaccination Acts.

Mr. Macdonald asked the Secretary of State for the Home Department whether he had instructed the police at Walham-green to distrain for fines imposed by the magistrate at the West London Police-court for non-compliance with the Vaccination Acts.—Mr. Asquith stated that the law officers had advised that in all cases where the penalty went to the Crown the police were justified in enforcing its payment, but in vaccination cases the police had been instructed to refer to the Home Office. In the present instance a distress warrant had been issued but had not yet been executed, and he (Mr. Asquith) had not yet given instructions in the case, which was under consideration.

State-regulated Vice.

Sir E. Grey informed Mr. W. M'Laren that no information had reached the Government that a draft decree dealing with the question of the control of public morality, with special reference to the class of European women who were allowed a licence in Cairo and Alexandria, had been drawn up by the legal officers of the Public Security Division. The Government could not control and were not responsible for the action of the Mixed Tribunals. Regulations, such as referred to, appeared to be proper matter for arrangement between the Egyptian Government and the Mixed Tribunals, and Her Majesty's Government could not lay a draft decree belonging to the Egyptian Government upon the table of the House or delay its consideration.

The Indian Currency Question.

Replying to Mr. Everett, Mr. Gladstone said that, taking into view the intentions of the Indian Government, there was no doubt that the position was more or less a provisional and intermediate one, and that that must be allowed for in estimating what had been done. He was given to understand that there was a very close analogy to it in the case of Austria in the years 1879 to 1891. The silver florin was there still, as the representative of an old system, a metallic legal tender, but the mints were at the same time closed to the private coinage of silver, whilst in 1891 the gold standard was introduced. With respect to the present condition of the Indian Mint, what he understood was that the quantity of silver coined was not to be regulated by the convenience of the Government but by the wants of the country—viz., the real demand for silver for the purposes of circulation.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.

ARKLE, GEORGE M., L.S.A.Lond., has been appointed Assistant Surgeon to the South Dispensary, Liverpool, vice Dr. Fagin, resigned.

BERRY, FRANCES MAY DICKINSON, M.D.Lond., has been appointed Pathologist to the New Hospital for Women.

BOSTOCK, R. H. F., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Norton Urban Sanitary District of the Malton Union.

BRIDGER, A. E., M.D. Edin., F.R.C.P. Eng., has been appointed Physician to the St. Pancras and Northern Dispensary.

BROWN, GEORGE, M.D., L.F.P.S. Glasg., has been reappointed Medical Officer of Health for the Colchester Urban Sanitary District of the Colchester Union.

CARTER, A. H., M.D. Lond., M.R.C.S., has been appointed Honorary Medical Officer to the Corbett Hospital, Stourbridge.

CHAVASSE, T. F., M.D. Edin., M.R.C.S., has been appointed Honorary Consulting Surgeon to the Corbett Hospital, Stourbridge.

DAKIN, W. R., M.D., has been appointed Physician to the General Lying-in Hospital, vice Dr. Cullingworth.

DE RENZI, HENRY CASTRIOT, M.R.C.S., L.R.C.P. Lond., late Senior House Surgeon, has been appointed Resident Obstetric Assistant to the Westminster Hospital.

EDEN, THOMAS WATTS, M.D., C.M. Edin., has been appointed Pathologist to the Chelsea Hospital for Women, vice Dr. Shaw-Mackenzie.

ELLIS, H. D'A., L.R.C.P. Edin., M.R.C.S., has been appointed Honorary Surgeon to the Corbett Hospital, Stourbridge.

GILES, ARTHUR E., M.D., M.R.C.P., B.Sc. Lond., has been appointed Physician to Out-patients to the Chelsea Hospital for Women, vice Dr. Gerald Harper, resigned.

GURNEY, HAROLD, L.R.C.P., L.M., L.R.C.S. Edin., has been reappointed Medical Officer of Health for the Borough of Harwich.

HOWAT, ROBERT K., M.B., C.M. Glasg., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Surgeon to the General Hospital, Wolverhampton.

KEANE, B., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Western Sanitary District of the Hamlet of Mile End Old Town.

KEKWICK, JOHN, L.D.S. Eng., has been appointed House Surgeon to the Dental Hospital of London.

LYON, A. B., M.B., C.M. Aberd., has been appointed Medical Officer for the Macduff Sanitary District, vice Hitchcock, resigned.

MCDOUGALL, J. E., M.R.C.S., L.R.C.P., has been appointed Assistant Medical Officer of Health for the Urban Sanitary District of Walton-on-the-Hill.

MINSHALL, A. G., L.R.C.P. Lond., M.R.C.S., has been appointed Senior Assistant Medical Officer at the Infirmary of the Parish of St. Pancras, vice Passmore.

MOSSOP, J., F.R.C.S. Edin., L.R.C.P. Eng., has been appointed Honorary Medical Officer to the Bradford Children's Hospital, vice Dr. A. Rabagliati, resigned.

MUIR, ROBERT D., L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Officer to Queen Charlotte's Lying-in Hospital, vice Dr. T. W. Eden, resigned.

RUSHTON, WM., L.D.S. R.C.S. Eng., has been appointed Dental Surgeon to the Hospital for Consumption and Diseases of the Chest, Brompton.

SMITH, H. H., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Surgeon to the Corbett Hospital, Stourbridge.

STOKES, HENRY FRASER, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Lecturer at the Church Missionary College, Islington.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASYLUM FOR IDIOTS, Earlswood, Redhill, Surrey.—Assistant Medical Officer. Salary £150 a year, with board and residence. Applications to the Secretary, 38, King William-street, London-bridge, E.C.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL, Chesterfield.—Assistant House Surgeon. Salary £50 per year, with board, apartments and laundress.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY, Chesterfield.—Resident House Surgeon. Salary £100 per year, with board, apartments and laundress.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer, who shall act as Pathologist (unmarried). Salary £100, increasing by annual instalments of £25 to £200, per annum, with furnished apartments, board &c.

COUNTY ASYLUM, Lancaster.—Clinical Assistant, for six months. Board, lodging &c. provided.

DEACONESSES' INSTITUTION AND HOSPITAL, Tottenham.—Senior House Surgeon. Salary £60, with board, lodging and laundry.

EAST SUFFOLK AND IPSWICH HOSPITAL, Ipswich.—Assistant House Surgeon (unmarried). Salary £20 per annum, with board, lodgings and washing.

GENERAL HOSPITAL FOR SICK CHILDREN, Pendlebury, Manchester.—Junior Resident Medical Officer, for one year. Salary £80 per annum, with board and lodging.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—House Surgeon. Salary £60 per annum, with board and lodging in the hospital.

GROSVENOR HOSPITAL FOR WOMEN AND CHILDREN, Westminster.—Anæsthetist.

GROSVENOR HOSPITAL FOR WOMEN AND CHILDREN, Westminster.—Assistant Physician.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident Medical Officer. Salary £200 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, W.C.—Assistant House Surgeon (non-resident), for six months. Salary £20.

HULL ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60, with board and furnished apartments.

LIVERPOOL INFIRMARY FOR CHILDREN.—Assistant House Surgeon, for six months. Board and lodging provided.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer (unmarried), for one year. Salary £150 per annum, with board and residence.

NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Surgical Registrar. Honorarium £20 per annum.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—Resident Clinical Assistant.

NOTTINGHAM BOROUGH ASYLUM.—Second Assistant Medical Officer (unmarried). Salary £100 per annum, with apartments, board and washing.

ROYAL PORTSMOUTH, PORTSEA AND GOSPORT HOSPITAL, Portsea.—Assistant House Surgeon, for six months. Board, residence and washing, and an honorarium of 15 guineas at the expiration of that term.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon, for six months. Board and residence provided and an honorarium of £10 will be given after six months' satisfactory service.

SWANSEA HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, furnished apartments, coals, gas, laundress and attendance.

VICTORIA INFIRMARY OF GLASGOW.—Superintendent and Resident Medical Officer.

WEST RIDING ASYLUM, Beverley.—Clinical Assistant, for about two months. Board and lodging provided.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY, Whitehaven.—House Surgeon. Salary £120 per annum and £30 per annum for Dispensing, with furnished apartments and attendance.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—Honorary Gynæcologist.

Births, Marriages and Deaths.

BIRTHS.

BAILY.—On July 13th, at Oban, the wife of Edwin Baily, M.B., of a daughter.

GRACE.—On July 17th, at Park House, Thornbury, Gloucestershire, the wife of Dr. E. M. Grace, Coroner, of a daughter.

HARDING.—On July 16th, at Elmsleigh, Moat Croft-road, Eastbourne, the wife of C. O'Brien Harding, M.R.C.S., L.R.C.P. Lond., of a son.

KIDD.—On July 11th, at Merrion-square, Dublin, the wife of Geo. H. Kidd, M.D., President of the Royal Academy of Medicine in Ireland, of a daughter.

NASH.—On July 15th, at Horndean, Hants, the wife of Charles Nash, M.R.C.S., L.R.C.P. Lond., of a son.

ROALFE-COX.—On July 16th, at The Laurels, Mortimer, Berks, the wife of Walter J. Roalfe-Cox, of a daughter.

TWINING.—On July 10th, at The Knoll, Salcombe, South Devon, the wife of A. H. Twining, M.D., of a daughter.

MARRIAGES.

COLLENETTE—KELLY.—On July 18th, at St. Mary's, Hampstead, Frank de Beauchamp Collenette, L.R.C.P. Lond., M.R.C.S., of Silverdale, Staffordshire, to Ada, second daughter of the late Samuel Kelly, of Burlington-road, Dublin.

D'ERF-WHEELER—BLYTH.—On July 5th, at Christ Church, Jerusalem, by the father of the bride, assisted by the Rev. C. H. Kelk, M.A. (L.J.S.), the Rev. Longley Hall (C.M.S.) and the Rev. J. Bay (C.M.S.), Percy Charles Edward D'Erf-Wheeler, M.D., F.R.C.S., F.R.G.S., of Jerusalem, to Grace Frances Popham, second daughter of the Right Rev. G. F. Popham Blyth, Anglican Bishop in Jerusalem and the East.

FARQUHARSON—STEWART.—On July 12th, at the Presbyterian Church, Regent-square, George Sinclair Farquharson, M.B., of Southampton, to Violet Annie, daughter of Lewis Stewart of 37, Carlton-road, Tufnell-park, N.

GELL—BRADSHAW.—On July 19th, at Christ Church, Lancaster-gate, Henry Willingham Gell, M.D. Oxon., of Albion-street, Hyde-park, to Edith, second daughter of the late Richard Bradshaw, Stanhope-street, Hyde-park.

HOW—ASHMORE.—On July 17th, at St. Cuthbert's, Philbeach-gardens, Arthur Benjamin How, M.R.C.S., of Stradbroke, Suffolk, to Georgina Madeleine, youngest daughter of Chas. Townshend Ashmore, Nevern-square, S.W.

JONES—SCHRADER.—On July 15th, at St. Margaret's, Lee, Kent, George Jones, M.B., of 7, Lansdown-road, Lee, S.E., to Cecilia Mary, second surviving daughter of the late George Schrader of Glasgow.

LANCASTER—CHADBORN.—On July 12th, at All Saints', Gloucester, Ernest le Cronier Lancaster, B.A., M.B., B.Ch. Oxon., of Swansea, to Annie Louise, eldest daughter of the late John Chadborn of Barton House, Gloucester.

LOWSON—DUNCAN.—On July 17th, at 53, Prince's-street, Edinburgh, by the Rev. A. Terras, M.A., St. Boswell's, assisted by the Rev. D. R. Robertson, B.D., Dundee, and the Rev. A. Cameron, M.A., Greenlaw, George Lowson, M.B., C.M. Dundee, to Margaret, youngest daughter of the late Gideon Duncan of Sprouston Bank, Newtown, St. Boswell's.

MORTON—WRIGHT.—On May 16th, at St. Mark's Church, Darling Point, Sydney, N.S.W., by the Rev. H. C. Vindin, B.A., William John Morton, M.B., L.R.C.P. Edin., eldest son of William Morton, Esq., of Canberra, to Harriet Annie, youngest daughter of J. J. Wright, Esq., J.P., of Queanbeyan.

TAYLOR—ELLIOTT.—On July 11th, at St. Andrew's, Fulham, James Taylor, M.D., Andover, to Eleanor Louisa Elliott, widow of the late F. H. Elliott, M.D.

WIGMORE—GOOD.—On July 18th, at St. Saviour's Church, Arthur William Wigmore, L.R.C.P. Lond., of Compayne-gardens, N.W., to Edith Mary, only daughter of Mrs. Good, 89, Warrington-crescent.

DEATHS.

COX.—On July 12th, at Marina, St. Leonard's-on-Sea, Frederick Augustus Cox, M.B. Lond., in his 38th year.

PACKMAN.—On July 14th, at St. Marychurch, Torquay, Alfred William Kennett Packman, M.D., formerly of Puckeridge and of Bengeo, Herts.

WALLIS.—On July 13th, at Oaklea, Hartfield, William Wallis, M.R.C.S. L.S.A., aged 79.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 20th, 1893.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Rainfall.	Remarks at 8.30 A.M.
July 14	29·83	N.E.	57	55	92	65	55	·02	Overcast
,, 15	29·96	W.	58	56	91	66	54	..	Cloudy
,, 16	29·93	W.	58	56	95	65	56	·01	Raining
,, 17	29·95	N.W.	62	59	112	72	57	·10	Cloudy
,, 18	29·99	N.W.	62	56	117	75	53		Cloudy
,, 19	29·72	S.W.	61	61	101	70	61	·07	Raining
,, 20	29·51	S.W.	63	63	79	65	61	·17	Cloudy

Medical Diary for the ensuing Week.

Monday, July 24.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays, at the same hour.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M.; and on Tuesday, Wednesday, Friday, and Saturday at the same hour.

ST. MARK'S HOSPITAL.—Operations, 2 P.M.; Tuesday, 2.30 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic Operations, 2 30 P.M.; Friday, 2 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations, daily at 10 A.M.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M.; and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2 P.M.; Thursday, 2 P.M.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M.; and on Thursday at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.

UNIVERSITY COLLEGE HOSPITAL. Ear and Throat Department, 9 A.M.; Thursday, 9 A.M. Eye Department, 2 P.M.

Tuesday, July 25.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at the same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Skin Department, 1.45; Saturday, 9.15.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electrotherapeutics, same day, 2 P.M.

Wednesday, July 26.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1.30 P.M.; Saturdays, 2 P.M. Obstetrical Operations, Thursdays, 2 P.M.

CHARING-CROSS HOSPITAL.—Operations, 3 P.M., and on Thursday and Friday at the same hour.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M.; Thursday and Saturday, same hour.

ST. PETER'S HOSPITAL, COVENT-GARDEN.—Operations, 2 P.M.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations, 2.30 P.M.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 1.30 P.M. Dental Department, 9.30 A.M. Eye Department, 2 P.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M. Surgical Visits on Wednesday and Saturday at 9.15 A.M.

Thursday, July 27.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. Ear and Throat Department, 9 A.M. Eye Department, 2 P.M.

Friday, July 28.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Eye Department, 2 P.M.

Saturday, July 29.

UNIVERSITY COLLEGE HOSPITAL.—Skin Department, 9.15 A.M.

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

PUBLISHER'S NOTICE.

IN order to facilitate the work of reference to the volumes of THE LANCET, we have arranged to publish duplicate copies of the Index to each half-yearly volume in a form in which they may be subsequently filed or bound together. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Publisher of THE LANCET.

"TO THOSE ABOUT TO CONSULT A DENTIST."

"It should not be supposed that a dentist who does not advertise is behind the times. The public should bear in mind that a fully qualified and educated Dentist is not allowed to attract business by such unbecoming and unprofessional methods as public advertisements, the exhibition of show cases, or by the inducement of 'low fees,' one and all humiliating methods and affording no criterion of personal skill, which must be a professional man's best advertisement. The public should know that the man who advertises is usually one whose ignorance is so great that he cannot trust to merit and respectability in order to obtain public patronage, so he resorts to pretention and puffing advertisements, and the public in consulting such a man quickly find their mistake. To avoid falling into the hands of these miserable pretenders, who are bringing discredit upon an honourable profession, consult only such as possess the Licence in Dental Surgery of the Royal College of Surgeons (L.D.S.R.C.S.), the only Government guarantee of proficiency."

This sagacious and high-toned piece of advice is taken from a circular the production of a gentleman who says (on the reverse of the same circular!) that "after many years of unremitting industry and professional experience, both in Hospital and Private Practice," he "has attained to a position in the front rank of the Dental profession. He holds the highest Dental qualification obtainable in the world and in his practice combines the methods of the various schools of Dental Surgery." We need make no comment, but we may inform the Royal College of Surgeons in Ireland that, as we gather from the Dental Register, they are the bestowers of "the highest Dental qualification obtainable in the world," and we may perhaps add that the circular of this Admirable Crichton of dentists was found in a letter-box in the West-end of London, the envelope (with the writer's card enclosed) bearing the superscription, "The Cook Housekeeper!"

THE ENGLISHMAN IN THE TROPICS.

DR. EIJKMAN of Batavia, writing in the June issue of Virchow's *Archiv* on "Tissue Change in the Inhabitants of the Tropics," remarks that "the inhabitants of the tropics, and especially European settlers, are generally disinclined to bodily exertion and instinctively limit muscular work to the most necessary movements; only the Englishman, more true to the customs of his country than other people, is more or less an exception to this rule."

Fides.—The question is a legal one. The claim on B seems to us doubtful. He might argue the liability of A.

Red Nose.—We do not prescribe.

DENHOLM TESTIMONIAL FUND.

THE following additional subscriptions have been received. As it is intended to close the fund shortly, the hon. secretaries—Mr. Charles Fegen, M.R.C.S., 2, Mornington-road, Bow, and Mr. Alexander G. R. Foulerton, M.R.C.S., 122, Brompton-road, S.W.—will be glad if those who propose to subscribe will send in their names as soon as possible. Cheques and postal orders should be made payable to the "Denholm Testimonial Fund" and crossed "Messrs. Gurney and Co." Subscriptions will be received by either of the hon. secretaries or may be paid directly to the "Denholm Testimonial Fund" at Messrs. Gurney and Co., Thetford, Norfolk, or at any other branch of the same bank.

Amount already acknowledged	..	.. £45	9	0
Mr. Henry Bank	..	.. 0	5	0
Mr. Bruce Clarke	..	0	10	0
Dr. George Heron	..	1	1	0
Dr. David Little	..	.. £1	1	0
Mr. T. B. O'Connor	..	.. 0	10	6
Dr. Amand Routh	..	1	1	0
Dr. Hinsley Walker	..	0	10	6

FRESH COMPETITORS FOR MEDICAL ASSISTANTSHIPS.

To the Editors of THE LANCET.

SIRS,—Allow me to draw the attention of the profession to the old and trite proverb—viz., "Charity should begin at home." I refer to the practice, springing up more especially of late, of employing ex-sergeants and corporals of the Medical Staff Corps as dispensers and bookkeepers, to the shameful exclusion of their own brethren. It is bad enough to employ a chemist, presumably as a dispenser, but ostensibly as a kind of unqualified assistant; but, in my opinion, it is far worse to engage an ex-sergeant who has passed some trumpery examination for a compounder in the army. The struggle for existence at the present day is keen enough both for the qualified and the unqualified assistant, and is this struggle to be made keener by our entering into competition now with both chemists and soldiers? Surely there is some *esprit de corps* left in those medical men who employ the kind of men I have named, and surely they can see the injustice they are doing to men of their own social standing who are in low water, many of them with this their only drawback. Sirs, I know of two cases which I desire to lay before you. One is that of an ex-sergeant employed as dispenser and bookkeeper, but who prescribes occasionally and extracts teeth; this person works eight hours daily and one on Sunday, and the work is of the easiest description, whilst his salary is 30*s.* per week, besides which he has a pension of nearly £50 per annum. The other is that of a gentleman who has passed his first M.R.C.S. and has also passed in medicine and midwifery at the new L.S.A., but who failed in surgery, and who is now doing a heavy assistancy at 26*s.* per week and two rooms, having to keep himself. These two instances ought to infuse into the profession a spirit of brotherhood and a desire to act with more justice towards their own brethren. I am quite sure that the authorities at the War Office would never dream of appointing an unqualified person to the charge of even a few soldiers; then why should our qualified men in good practices employ ex-soldiers in preference to their own kith and kin? I would like to see THE LANCET champion the cause of our humbler brethren, both qualified and unqualified, in the face of this invasion into our midst of pettifogging compounders who in process of time come to call themselves unqualified assistants.

I remain, Sirs, yours faithfully,

July 16th, 1893. GENERAL PRACTITIONER.

UNQUALIFIED CHEMISTS NOT COVERED BY QUALIFIED ASSISTANTS.

AT the Ripon County Court, recently, the council of the Pharmaceutical Society of Great Britain sued Joseph Topham Verity of Pately Bridge, wine and spirit merchant, for selling chlorodyne and laudanum and exhibiting the name or title of "chemist and druggist," three penalties being claimed under the Pharmacy Act. The defence was that Mr. Verity had a qualified assistant as manager. He quoted the case of the Pharmaceutical Society *v.* the London Supply Association. His Honour did not think this decision applied in the present case. It was proved that the defendant "kept open shop" for the sale of poisonous drugs, and it was also shown that he had used the title of "chemist and druggist." The verdict was for the plaintiffs for £15 with costs. The Pharmaceutical Society is only doing its duty in prosecuting in cases of such flagrant breaches of the law.

COMPULSORY NOTIFICATION IN BELGIUM.

THERE is as yet no compulsory notification of infectious diseases, except in the case of cholera, in Belgium; but the question is being vigorously debated there at the present time, and it is probable that a Bill on the subject introducing compulsory notification will be introduced into Parliament before long. The Council of Hygiene has been directed to report on the best measures to be taken. Some members would pass a very stringent law, making notification of a great many diseases obligatory, whilst others think it would be best to begin by scheduling only small-pox, typhoid fever, diphtheria and scarlet fever, leaving it to the Government to add others later on.

Enquirens.—Inquiry made of the Superintendent of the Emigration Department would probably elicit particulars of the appointments of surgeons on board ships which carry coolies.

A MODEST LETTER FROM AN UNQUALIFIED PRINCIPAL—WANTED: A "COVER" AND "A GOOD OPERATING SURGEON" FOR £40 A YEAR.

THE following letter has been forwarded to us for reproduction *minus* certain particulars for obvious reasons. It is very instructive and very *cool*:

"Dear Sir,—I want you to put me in communication at once with a well-qualified and registered man who will come down and supervise a practice for me until I am qualified. He must be single and a total abstainer. There will not be much work for him to do as I can do it, but must have a qualified man in charge. I offer him a comfortable home, plenty of time to himself, but only a small salary—say, £40 or £50 per year—and a prospect of partnership if we agree. This is a splendid chance and plenty of money to be earned, as I have *no rivals worth speaking of here*. If he is a good operating surgeon so much the better, or if he has the M.D. degree, as no practitioner near here has it. I must have someone at once, so they must either wire or write stating full particulars, references &c.

"I am, yours faithfully,

"——."

"P.S.—Of course it is needless for me to say this is in strict confidence, and they must not come down until they hear from me."

Nemo.—The questions submitted to us by our correspondent hardly seem well adapted for examinations in elementary anatomy. We may instance two: "Describe the naked-eye and microscopic structure of the testicle. Explain shortly the development of the organ." "Describe the azygos veins and explain their development." The latter question, we understand, was, with slight modification, set at the recent examination for honours at the University of London.

NEWSPAPER PUFFING AT WORKINGTON.

A NEWSPAPER paragraph appears in the *West Cumberland Times* lauding the skill of "Dr." Dudgeon (L.R.C.P. & S. Edin.), of the Workington Infirmary, who after five operations on a cripple who had been unsuccessfully treated at three other infirmaries, cured him effectually. It would be very satisfactory if Mr. Dudgeon would disclaim responsibility for a puff in such questionable taste. Every medical man is gratified at being able to cure long and difficult cases, but he is satisfied with his own consciousness of usefulness and success, and he is kept humble by cases in which others have succeeded where he has failed.

Subscriber.—If the assistant enters into an obligation to the effect stated we do not know why it should not be binding. The wisdom of entering into the agreement is quite another matter.

PROPOSED MEDICAL COURTS IN BELGIUM.

A REPORT has just been drawn up by a committee of the Belgian Royal Academy of Medicine on medical courts. Complaints are made that the ordinary courts deal in a very unsatisfactory manner with infractions of the medical law, and it is urged that special courts, corresponding with those established for the consideration of commercial cases, should be created, composed of medical men, pharmacists and veterinary surgeons. From the decisions of these medical courts an appeal would lie to the courts of appeal. The Academy has decided to discuss the question in conjunction with a proposition for limiting the number of pharmacies in the country.

HARROGATE WATERS AND MEDICAL ADVERTISEMENTS.

THE *Harrogate Advertiser* of July 1st has been sent to us and our attention directed to three advertisements in that paper of practical observations on Harrogate waters, one of them including our own review of the book by Dr. Myrtle and Dr. J. A. Myrtle. No one is more entitled to express an opinion on the action of these waters than Dr. Myrtle. The advertisements look large and numerous. Dr. Myrtle will, we doubt not, be the first to admit this and to perceive that the excessive advertisement of medical books in the lay press is an evil to be guarded against.

During the week marked copies of the following newspapers have been received:—*North-Eastern Daily Gazette, Birmingham Daily Post, Dublin Evening Telegraph, Weekly Budget, Science Siftings, North British Advertiser, Swindon Advertiser, Drogheda Conservative, Bury Post, Scottish Leader, Glasgow Herald, Dundee Advertiser, Health, Liverpool Daily Post, Bristol Mercury, Yorkshire Post, Leeds Mercury, Scotsman, Bromsgrove Messenger, Lightning, Cambridge Weekly News, City Press, Local Government Chronicle, Hertfordshire Mercury, Weekly Free Press and Aberdeen Herald, Sanitary Record, Mining Journal, Reading Mercury, Evening Chronicle (Newcastle-on-Tyne), Builder, Citizen, Sunday Times, Architect, Times of India, Pioneer Mail, Malta Chronicle, Liverpool Courier, Local Government Journal, Surrey Advertiser, West Middlesex Advertiser, Morning, North China Daily News, Herne Bay Argus, Forfar Review, Brecknock Beacon, Southwark and Newington Chronicle, Essex County Standard, The Wilkes-Barre Record, The Warehouseman and Draper, &c. &c.*

Communications, Letters &c. have been received from—

A.—Dr. J. Althaus, London; Mr. J. W. Arrowsmith, Bristol; Messrs. Armour and Co., London; Messrs. Arnold & Sons, London; A. C. H., London; Amberley, Harrow-on-the-Hill; *American Medico-Surgical Bulletin*, New York, Manager of; Amethyst, London.

B.—Dr. Edward Blake, London; Prof. D. C. Black, Edinburgh; Mr. Blackett, London; Mr. C. Birchall, Liverpool; Mr. Walter Booth, Finchley; Mr. S. W. Beck, Tiverton; Messrs. F. B. Benger and Co., Manchester; Messrs. Burgoyne, Burbidges and Co., London; *Birmingham Daily Post*, Manager of; Birmingham General Hospital, House Governor of; Brand, London.

C.—Dr. Charles J. Cullingworth, London; Miss Louisa E. Cole, Worthing; Messrs. F. C. Calvert and Co., Manchester; Messrs. Crossley, Moir and Co., London; Messrs. Curry and Paxton, London; Chesterfield Hospital, Secretary of.

D.—Dr. J. H. Dewhurst, Tunbridge Wells; Dr. T. S. Dowse, London; Messrs. W. Dawson and Sons, London; Messrs. Davies and Co., London; Deaconesses' Institution, Tottenham, Secretary of.

E.—East Riding Lunatic Asylum, Beverley, Clerk of.

F.—Dr. C. N. Fox, Ramsgate; Dr. Fleming, Coombe Martin; Dr. H. E. Fraser, Inverness: Flintshire Dispensary, Holywell, Resident Medical Officer of; Farmer, London; F.R.C.S., London.

G.—Mr. Hastings Gilford, Reading; Glasgow Maternity Hospital, Secretary of; Galen, London.

H.—Mr. Walter W. Heelas, Wokingham; Mr. Heywood, Cairo; Mr. Harper, London; Mr. J. F. Hyde, Plymouth; Mr. W. F. Horton, London; Messrs. C. J. Hewlett and Son, London; Hull Royal Infirmary, Secretary of; Home, London.

I.—Iegs Nurses' Coöperation and Home, London, Manager of; Ipswich Hospital, Secretary of.

L.—Dr. J. J. Lynch, London: Dr. J. F. Little, London; Mr. H. K. Lewis, London; Messrs. Longmans, Green and Co., London; Leeds Hospital for Women and Children, Secretary of: Leicester Friendly Societies' Medical Association, Secretary of.

M.—Monarch Investment Building Society, Secretary of; Maltine Manufacturing Co., London; Medico-Psychological Association, Secretary of, London.

O.—Prof. Ogston, Aberdeen.

P.—Dr. R. G. Price, Carmarthen; Mr. Bernard Pitts, London; Mr. Arthur E. Price, Longton; Mr. C. H. Powers, Silloth.

R.—Dr. B. Romeo, Rio de Janeiro; Mr. John C. Richardson, Herne Bay; Messrs. J. Richardson and Co., Leicester; Messrs. Richardson Bros. and Co., Liverpool; Messrs. Reynell and Son, London; Royal British Nurses' Association, Secretary of; Russian China Tea Co., London, Manager of.

S.—Sir Eyre Massey Shaw, London; Mr. H. Fraser Stokes, London; Mr. N. Smith, London; Messrs. Steel and Jones, London; Messrs. J. Smith and Co., London; Solus, London; Swansea Hospital, Secretary of.

T.—Mr. Bertram Thornton, Margate; Mr. G. H. Taylor, London.

U.—University College of South Wales, Registrar of; United States Life Insurance Co., New York, Manager of.

V.—Victoria Infirmary, Glasgow, Secretary of; Volvox; Veritas, London.

W.—Dr. Wilks, London; Mr. West; Mr. W. Roger Williams, Preston; Messrs. Whitworth and Stuart, Manchester; Messrs. W. Watson and Co., London; Messrs. White, Druce and Brown, London; Messrs. Wright, Dain, Peyton and Co., Birmingham.

Y.—*Yorkshire Post*, Manager of, Leeds.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. W. J. Anderson, Clown; Assistant, London.

B.—Dr. C. E. Baker, St. Albans; Mr. F. W. Beville, East Molesey; Mrs. S. A. Bennett, London: Messrs. Burroughs, Wellcome and Co., London; Messrs. Bruce and Co., London; B. T., London.

C.—Mr. E. Carter, London; Mr. R. Clegg, Windermere; Mr. W. J. R. Cox, Reading; Mr. G. J. Cressy, Mansfield; Mr. J. N. Cregeen, Liverpool; Messrs. F. C. Calvert and Co., Manchester; Chemical, Paignton; C. B., London; Clare Infirmary, Ennis, Secretary of; C. H. W. B., London; Class Rooms, Edinburgh.

D.—Mr. A. V. Dyer, Bishops Waltham; Mr. Delahunt, Stamford Bridge; Dunedin, London; Durham, London.

E.—Mr. B. Edwards, Birmingham; Edwards, London.

F.—Mr. M. H. Feeny, Ulverston; F. R. C. S., Reading; Feringo, London.

G.—Mr. P. Gould, Macroon; Mr. G. Griffith, Milford Haven.

H.—Colonel Heywood, Malvern; Mr. J. A. Hughes, Holywell; Mr. H. W. Husbands, Harrold: Mr. G. Hart, Pontypool; Mr. W. W. Hoare, Great Marlow; Mr. F. E. Henbeck, Preston; Hooper, London.

I.—Iatros, London; Insomnia, London.

J.—Dr. B. B. Joll, Liverpool; Mr. H. J. R. Jones, London; Mr. Y. M. Jones-Humphreys, Cemmaes; J. C. G., London; J. C., Hull; Jeyes' Sanitary Compounds Co., London.

K.—Dr. H. P. Keatinge, Cairo; Mr. G. Knapton, Seascales; Mr. J. S. Keys, Gorseinon; Mr. B. Kühn, London.

L.—L. A. W., London; Lambie, London; 64, The Lawn, Shepherd's Bush.

M.—Dr. W. J. Morton, Inverell, New South Wales; Dr. T. H. Morton, Sheffield; Mr. H. McDonald, Oban; Mrs. W. Morris, Aberystwith; M. H., London; Melita, High Wycombe; Medicus, Bishop Auckland; Medicus, London; Medicus, Crewe.

N—N. J., London.

O.—Dr. P. J. O'Sullivan, Curragh Camp; Mr. C. A. R. Osburne, Hythe; O. M., London; O. O., London.

P.—Mr. W. A. Pierce, Birkenhead; Mr. G. Packer, Elstree; Proprietress, Winchelsea.

R.—Dr. T. H. Redwood, Rhymney; Mr. F. J. Rebman, London; Mr. F. S. Reed, Bridgwater; Royal South Hants Infirmary, Southampton, Secretary of; Reed, Sturry.

S.—Dr. J. F. Sturrock, Broughty Ferry; Dr. D. Stewart, Nottingham; Dr. Smith, London; Mr. W. D. Smith, London; Mr. G. Slater, Sheffield; Messrs. Stubbs and Co., London; Messrs. Slinger and Son, York; Swindon Union, Clerk of; Suburb, London; Surgeon, London; Statim, London.

T.—Mr. W. Thwaites, Bristol; Mr. H. E. Taaffe, Londonderry.

W.—Dr. J. T. Windle, Halifax: Dr. J. S. Walker, Hanley; Mr. H. D. Walters, Coventry; Mr. R. E. Walker, New Westminster, Canada; Mr. A. Wright, Westport, N.Z.; Mr. B. Walker, Killamarsh; Mr. J. H. Wraith, Darwen; Mr. T. O. Williams, Bodorgan; Mr. P. Williams, Market Drayton; Mrs. Whalley, Bushey Heath; W. H., Manchester; Warneford Asylum, Oxford, Medical Superintendent of; W. W., Wednesbury; W., London; Whitehaven and West Cumberland Infirmary, Secretary of; Wilson, London.

X.—X. Y. Z., London.

SUBSCRIPTION.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year ..... £1 12 6 | Six Months £0 16 3

TO THE CONTINENT, COLONIES, UNITED STATES, INDIA, CHINA, AND ALL PLACES ABROAD ..... One Year 1 14 8

*** In consequence of the new postal arrangements, the Annual Subscription for India, China, and all foreign countries will now be reduced to £1 14s. 8d., instead of £1 16s. 10d. as formerly.

Post Office Orders and Cheques should be addressed to The Publisher, THE LANCET Office, 423, Strand, London, and crossed "London and Westminster Bank, St. James's-square."

ADVERTISING.

Books and Publications (seven lines and under)	£0 5 0
Official and General Announcements	0 5 0
Trade and Miscellaneous Advertisements	0 4 6
Every additional Line	0 0 6
Front Page — per Line	0 1 0
Quarter Page	1 10 0
Half a Page	2 15 0
An Entire Page	5 5 0

The Publisher cannot hold himself responsible for the return of testimonials &c. sent to the office in reply to advertisements; copies only should be forwarded.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post Offices letters addressed to initials only.

An original and novel feature of "THE LANCET General Advertiser" is a special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

Terms for Serial Insertions may be obtained of the Publisher, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 66, Rue Caumartin, Paris.